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ABSTRACT

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FUTURISM AS AN APPROACH TO DECISION MAKING IN TEACHER EDUCATION

by
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TOPIC: *Futurism as an Approach to Decision Making in Teacher Education*

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*Asterisk indicates major descriptor.

INTRODUCTION AND RATIONALE

by
Donald R. Thomas
Senior Author

Futurism is on everyone's mind. When the pace of change accelerates and we are concerned lest we lose control, we seek ways to impose some stabilization on events. We recognize that we simply cannot stand around and "let things happen" to us. So we seek to invent possible scenarios to see what things would be like "if. . ." and then seek further alternatives to give ourselves some sense of choice. We assume we can control the future if we can just think systematically about it and consciously try to shape it.

But the difficulty with most inventions of the future is that they are tied so inexorably to the past and present. That is, they somehow seem to assume instinctively that present images, built as they are upon the past, are inevitable and perpetual. Futurism as a new science, however, involves the "never-before-confronted." Futurism makes short-range, middle-range, and long-range predictions of alternative or optional futures.

The accuracy of these predictions is almost irrelevant; obviously we cannot *know* the future in the same sense that we *know* the past or present. But, in futurism, we can leap free from the present to project the possible, if not the probable, in a way that recognizes that all changes impact upon all other changes and, therefore, that any totality of the future is not, and cannot be, a mere revision of the past or a cosmetic retouching of the present.

Education is the major social institution franchised to induct the young into the society of the future. Yet it seems particularly unable to disengage itself from the traditions of the past and the commitments of the present. Some would argue that this is right and proper. Education should reflect the best the society has had to offer. But obviously, if it is to be serviceable to the young, education must at least anticipate the existence of a future. Futurism offers a systematic approach to the resolution of this dilemma. Futurism does, in fact, start from the known, but then proceeds to invent a series of previously unknown futures, all possible, and all subject to choices and to the vagaries of human events.

The development of such anticipatory information should not frighten us. We have been forecasting for years, but we have not been very systematic or scientific about it. Teacher education has always been directly involved in short-range futuristic predictions and secondarily involved in promoting the skills of middle- and long-range predicting. In the short range, the teacher educator has had to design a training program that, itself, would last for three to four years. Logically, that training program should have been as relevant to the real world at its completion as it was at its beginning. Yet the pace of change in the modern world is so rapid that the graduating senior often pondered a world he never contemplated when he was a freshman.

Thus, the teacher educator has always been compelled to try to anticipate the world into which the graduating teacher will emerge and begin his teaching career. Further, the teacher educator must now attempt the task of re-educating past products of his programs in the light of the new dimensions and ever-changing demands of the future.

Compounding our problem is the additional certainty that the young graduating teacher will immediately confront a need to formulate a program for a group of children who he knows will not enter the adult world until many years later. To accomplish this awesome task, the young teacher automatically is involved in both middle- and long-range predicting of alternative images of the future. He cannot turn back or remain at rest. So it seems clear that the skills he will need to confront the future and generate his predictions must have been an important part of his preservice training. If not, such training becomes an emergency element in the subsequent renovation process we call "in-service education," which, necessarily, is a continuing activity if it hopes to cope with the changes upon changes that engulf the practicing teacher.

Futurism is an indispensable area of study and concern for the teacher educator, the teacher trainee, the practicing teacher, and any other educator whose specialty involves planning or projecting anything for youth. Futurism, rightly conceived and implemented, should permeate the entire educational decision-making processes. But it must be the future, not the present or the past.

Toffler warns us that nothing could be more deceptive than tying our images of the future to the myth that tomorrow's world will simply be today's world writ large. He goes on to say:

> "I would contend, in fact, that no educational institution today can set sensible goals or do an effective job until its members--from chancellor or principal down to the newest faculty recruit, not to mention its students--subject their own assumptions about tomorrow to critical analysis."[1]

Such an analysis must include the values underlying any factual projections or goals set, for it is in the arena of values that much of the unwillingness to change, or even predict change, exists. Many alternative images of the future not only are projections of events, but implicitly assume some change in our value systems. New value systems, of course, are not subject to empirical proof or disproof. It is the strategy of those who would resist change, those who would remain affixed to the present or the past, to insist upon relics and realia before they can accept a new condition, a promising practice, or a controversial assertion. Values may be used to interpret facts or clusters of facts, or they may dictate what facts one wishes to find or to develop. In either case the empirical test is inappropriate. Yet the futurist's projections may still be valid, if one accepts the notion that alternative value decisions are always possible, and may be desirable.

In preparing this publication, we have examined certain trends in the world in general, and in the U.S. in particular, and selected some as apparently persuasively inevitable. Some of these trends emerge from repeated observations of facts; others combine observations with value preferences; still others may be clearly value assertions alone. All, however, seem to be significant, and barring the intervention of major "system breaks," we, as futurists, can reasonably hope to manipulate them as we try to formulate some definite "possidictions" about the educational future.

World urbanization. All demographic data assembled to date indicate a continuing and clear movement from rural to urban, and at an accelerated pace, even in countries that are overwhelmingly agricultural. The educational world of the future will be an urban world. By "urban," we mean a combination of inner city and suburban or, in effect, a metropolitan complex.

Increasingly rapid technological development. Gabor and a host of others have elaborated on the incredible pace of technological development, a pace which seems to have its own momentum and already has apparently outstripped man's ability to deal rationally with the wide range of his own inventiveness.[2] There are no indications that this pace will slacken.

Increasingly rapid explosions of knowledge. Knowledge breeds knowledge. With each new discovery comes a new set of questions, which in turn sets off a new round of discoveries, geometrically increasing with each stimulation and response. We know more than we understand, and the pace is quickening. Man is a perpetually curious beast.

Increasing recognition of the reality of cultural pluralism in the U.S. as well as the U.S.'s growing role as a world leader. Nothing seems clearer in the nation than the burgeoning and vigorous assertion of cultural identity that emerged from the civil rights movement, the ethnic heritage movement, and the identity crises associated with modern urban living. Beyond our borders, the shrinking globe compels our attention to the world's cultural diversity and our need to learn to live with it in peace.

Increasing demand by developing nations for self-determination, coupled with rising expectations for a better life. A corollary of the previous point, such demands exercise considerable pressure on our priorities for technological and educational development. They insist upon our attention, our understanding, our concern, and our participation, which, in turn, presumes adequate communications.

Increasing development of mass informational systems. With the combination of new technology and new knowledge threatening to overwhelm us with its sheer volume, we have an even greater need to organize, classify, and disseminate information so that we can digest, know, and perhaps understand it all. Mass informational systems are the result, both a blessing and a terror; and they are only in the infancy of their possibilities.

Increasing crisis in world food and energy supplies. If too many people need and want too much food and too much energy, only careful and coordinated planning can avoid disaster. The discovery and invention of new resources, worldwide, become imperative, as does training in conservation.

Increasing need for more education for more people. As the technological and knowledge explosions continue and as the revolution of rising expectations grows, more people will be needed to understand, organize, and manage the resultant changes. More education for more people must be a consequence. Further, if man is to survive as man, his humanity lies in his continuing personal development. More education is the key to that development as well.

Increasing need for environmental maintenance. The survival of both man and his planet depends upon continuing education and planning involving worldwide cooperation in futuristic projecting.

Perpetual conditions of a "temporary society." Where change is constant, and where, in the words of A. N. Whitehead, "the major advances in civilization are processes that all but wreck the societies in which they occur," all governmental forms seem impermanent, all structures temporary. Bennis and Slater insist that democracy is the only form of government that has the flexibility to cope with such constant change and upheaval.[3] We also know that democracy needs eternal vigilance and constant exercise.

Need for individual sense of identity and humanity. The two crucial questions of our time seem to be; Who am I? Who cares?

We have attempted here to sketch out a history of the future, as we try to locate the functions of the educator in that future. We have tried to distill essences of educational experiences that will have validity under the conditions we have described. Of course, our vision is imperfect and incomplete, but there are some discernible shapes that both logic and values can establish.

COMMUNICATIONS

In the first essay, this author contends that human beings will need more than ever to be taught the basic skills of communications, the encoding and decoding processes that are the tools of thought, and since we are finally recognizing the culturally pluralistic nature of our nation and our world, such communication will have to be multilingual and compatible with our developing technology.

THINKING

In the second essay, Katz explores the notion of teaching people to think, contrasting the Dewey inquiry model and the discipline model. He insists that educators must ask themselves, "How should we teach people to think about the future?" His first answer is to de-emphasize teaching information as an end in itself. Katz wants us to teach students to identify

and correct mistakes in thinking and to learn to ask productive questions. He concludes with an appeal to make pedagogy less puzzling and renew our concern for interdisciplinary interaction and training.

STORAGE, RETRIEVAL, AND UTILIZATION OF KNOWLEDGE

In the third essay, Chin and Genova offer a three-dimensional paradigm of "futurizing" in education. The problem they suggest is the current diffusion of decision making combined with the dispersion of knowledge. They propose a reconstruction of the knowledge that is stored and a reconstruction of the process of knowledge utilization, conceptualized around the process of digital computer logic and design. Finally, they propose a model for the place of selfhood in knowledge utilization, futurizing about futurizing, and so on.

CREATION OF KNOWLEDGE AND ARTS; TEACHING OF VALUES

Rich, in the fourth essay, presumes that children of the future cannot be lulled into a life of mere consumerism of knowledge, goods, services, and the arts. They must understand and demonstrate developing skills in the *creation* of knowledge and the *creation* of the arts. Rich also explores the teaching of values and ethics as a context in which knowledge and the arts are produced, distributed, and consumed, toward the end of moral autonomy and full humanness.

HUMANISM

In the final essay, Nash discusses the celebration of humanism. Humanism is, he says, putting humankind in the center of the picture, now and in the future. Nash explains how that can be done through the education of human beings in relation to themselves, to others, and to the world.

In summary, the world we see ahead, for which we must plan our educational program, is a culturally diverse, urban world in which knowledge and technology produce constant change with explosive rapidity. It is a world of intercultural tensions, environmental crises, and dehumanizing pressures. It is an exciting world in which the role of education is profoundly challenging and ever more central to man's race to survival, for as Mumford states, in his *The City in History:* "Before modern man can gain control over the forces that now threaten his very existence, he must resume possession of himself."[4]

The five tasks to which we have addressed ourselves in this publication are described above. It is our contention that, given the broad trends we have identified, the *minimum* mission of education will center in these five instructional arenas.

We are obviously not much concerned about the teaching of isolated and specific facts. We know facts will change rapidly, and we could not hope to design a curriculum that would even remain current, much less pertinent to the future, if we were to depend upon the past practice of cramming children's heads full of such evanescent detailed material. So we have concentrated on ideas, processes, and broad principles, on essences that would, we hope, produce minimal guarantees. To do this, we have consulted no mysterious

oracles, crystal balls, or audacious science fiction. Each of us asked the staff of the ERIC Clearinghouse on Teacher Education to probe the System Development Corporation's nationwide interactive retrieval service for all possible ERIC references. Each of us consulted our own libraries, our own resources, and our own imaginations. We agreed that we need not agree with one another and, further, that we would not necessarily use words and concepts in precisely the same way. Although the essays are interrelated, we hope each could stand alone, for most importantly, each of us has aspired to a vision of the future, an extrapolation from the known to the unknown.

It has been an exciting but sobering adventure.

NOTES

1. Alvin Toffler, ed., in Learning for Tomorrow (New York: Random House, 1974), p. 5.

2. Dennis Gabor, Innovations: Scientific, Technological and Social (New York: Oxford University Press, 1970).

3. Warren G. Bennis and Philip E. Slater, The Temporary Society (New York: Harper and Row, Publishers, 1968).

4. Lewis Mumford, The City in History (New York: Harcourt, Brace, Jovanovich, 1961), p. 573.

BASIC COMMUNICATIONS IN A MULTICULTURAL WORLD

by
Donald R. Thomas
The American University

There can be no doubt, writes Douglass, "that the central and abiding issue in teaching and learning is that of finding ways of helping all children achieve adequate levels of literacy."[1] Literacy, however, tends in common usage to be restricted to the ability to read. We would extend the definition to all forms of communication: reading, writing, speaking and listening, even the language of gesture and the powerful communications implicit in a variety of visual images such as pictures, sculpture, or the television screen. In short, the most basic task of education is to provide the young with the skills of encoding and decoding, classification and categorization of all the symbols, in all the systems of notation we humans use as tools to communicate with one another.

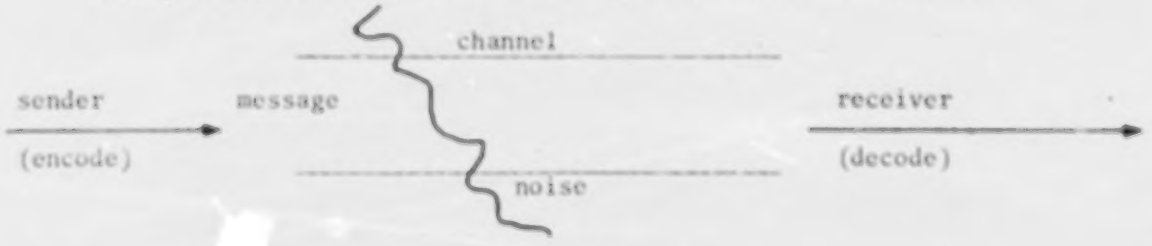
What makes us unique as a species is our ability to use symbols, in complex combinations, to enhance interpersonal communications, to solve problems, to better our conditions, and to strive for some ultimate peace and happiness. Such symbols, which may be perceived by hearing or sight, transmitted by gesture or expression, are tools, to be used intelligently to transmit thoughts and feelings to other human beings. The potential complexity of such communications, considering the almost infinite resources of the human brain, ensures an endless and most difficult educational task.

The function of such communication, Reusch and Bateson tell us, is

(a) to receive and transmit messages and to retain information;
(b) to perform operations with the existing information for the purpose of deriving new conditions which were not directly perceived and for reconstructing past and anticipating future events;
(c) to initiate and modify physiological processes within his [man's] body;
(d) to influence and direct other people and external events.[2]

To this list must be added the injunction that such communication usually takes place in the context of some system of values and beliefs that colors and shades the meanings of the symbols used and the behaviors perceived.

A simplified communications model may illuminate our discussion.



Obviously the hope of any act of communication is maximum efficiency; that is, the receiver receives 100% of what the sender sends. If this happens, the communication is complete and true. But most of the time, our communications are not 100% efficient. The reasons are varied:

1. The sender does not encode correctly; he does not say what he wanted to say because his ability to use the tools of communication is insufficient to the particular task.

2. The wrong channel, or means of communication, has been chosen; it is not appropriate to the message.

3. The message is, in some way, incomplete, garbled, or insufficient.

4. Noise factors, defined as anything that interferes with the transmission of the message, cause distortion or can even block the message.

5. The receiver is unable to decode the message, or at least decodes it inaccurately, for any one of a vast number of reasons, ranging from simple inability to understand the code to willful distortion because of conflicting values or attitudes.

If our *present* problem is "finding ways of helping all children achieve adequate levels of literacy,"[3] now defined as total communications, not just reading, then our *future* problem has parameters undreamed of by current educators. In an urban, culturally pluralistic world, we cannot survive 80-90% illiteracy rates; the tensions evoked by incomplete, inaccurate, or inadequate communications among diverse people would simply erupt into overwhelming violence and destruction. Concomitantly, our educational task is recognized as more difficult because we must add to it the factors of multilinguality and advanced communications technology. It will not be enough to encode and decode in one language and one cultural context; adequate communications demand understanding of many languages and notation systems. Neither will it be sufficient in the future to think of communications solely as a written system; Bair tells us that now we must consider an "augmented human intellect system," employing all of the technology of communications.[4] In short, the senders and receivers of the future will have a greater array of tools from which to choose and a greater variety of channels into which messages, of greater complexity, can be routed.

Bagdikian claims:

> Today we are on the threshold of a change in human communications which is more powerful and perhaps more significant than all past changes in the technology of information. The way men deal with each other and with the distant world is about to be transformed by a combination of the computer, innovations in the transmission of signals, and new ways to feed images into the system and to take them out. All informational systems, including the news media, will be more intertwined with each other than they are today.[5]

Before we can deal with the implications of such profound change and make it a meaningful part of our images of the future, we must examine some of the characteristics of communications as we know them now. Communication occurs when a receiver recognizes the symbols sent him by the sender. That sounds simple enough, but it contains assumptions which must be traced.

Symbols, we said, may be auditory or visual, though human perception also includes taste, touch, and smell. Symbols represent something, but they are also situationally based. For example, a word stands for some phenomenon, but only in terms of how we use it, the context in which it comes. If I use the word "house," it may conjure up a variety of images. I sharpen my meaning by the modifiers I choose and the context in which I use the word, and the receiver understands me better if he also understands who I am and what my values and cultural experiences have been. If I speak the word, I may express the sounds of "house," or the sounds of "casa," or any one of a variety of other sounds associated with a particular language, or notation system. So the context in which I speak, the colors of my culture, and the notation system I use, are as important as my actual words.

Vollmer suggests that much of the irrational and unprogressive behavior characterizing the present age is caused by the nature of language and the manner in which it is used. The reverse may also be said to be true; namely, that much of the irrational and unprogressive use of language is caused by the nature of our present-day behavior. Specifically, one might question the rationality of assigning value--good or bad--to a notation system. Yet when a child speaks in a language other than our own, we are quick to condemn him or, at least, imply to him that he is something less than good because he does not use *our* notation system. This is often an extension of our tendency to view cultures other than our own as "inferior," "quaint," or "mysterious," perhaps even "disadvantaged."

MULTICULTURALISM

So, before we can confront the problems of communications in the culturally pluralistic world of the future we need to characterize multiculturalism and concede its value base. Dolce outlines some important points in this respect:

1. Multiculturalism is a reflection of a value system which emphasizes acceptance of behavior differences deriving from differing cultural systems and an active support of the right of such differences to exist.

2. The concept of multiculturalism transcends matters of race.

3. Multiculturalism is not simply a new methodology which is grafted into an educational program.

4. A multicultural state of affairs is not one which is devoid of tensions. All differing cultures are not complimentary.

5. Based upon mutual respect among different cultures, multiculturalism is not a euphemism for disadvantaged. Cultures are neither inherently superior nor inferior to each other.[7]

It follows, then, that multilingualism is the communications corollary of multiculturalism. We are reminded that language is a reflection of culture, an outgrowth of a particular people's need to express themselves in a particular manner. What is common to all cultures is the need to express thoughts and feelings in some organized system of communication. Contrastive analysis is one tool linguists use to study the similarities and differences among language systems. A subdivision of such study would be the study of variation within one language system, such as dialects (variations in the sound system) or idiosyncratic usage (variations in the structural system). If we cannot accept variations in our one language system, we will have even greater difficulty understanding and accepting variations among differing language systems.

BEYOND PRIDE

The acceptance of the value premises of multiculturalism may indeed cause a rediscovery for some, and a first discovery for others, of ethnic or racial pride in self and in one's cultural values. But it would not be multiculturalism, but rather a tragedy, if the process stopped there, for we would experience a jungle of competing prideful people. Discovery, rediscovery, and recognition are merely a first stage. It involves a new awareness of one's needs, rights, and privileges and the vigorous assertion of them. It also involves, somewhat secondarily, recognition that others are engaged in the same process and can be expected to assert their positions with equal vigor. Such recognition of others in stage one may resemble only faint awareness. The Arab is faintly aware that the Norwegian exists, has a different culture, and speaks a different language. The Chicano is aware that the Northern Cheyenne exist, that they probably speak and dress differently than he does, and perhaps worship a different God. The white Anglo-Saxon American senses that black Americans have customs, mores, even dialects different from his, but he may not know the details or the implications of such differences.

In the second stage, the new pride creates hostility, anger, and intense competition between groups. Each is highly sensitive to any slight, real or imagined, and if a particular group feels, rightly or wrongly, that in the past, other groups have imposed upon it, long-held resentments will be unleashed, conflict precipitated, and revenge sought.

The U.S. today may be caught up in stages one and two, in that only part of our population has acknowledged our cultural diversity (some still yearn for and believe in the "melting pot" theory). Others have discovered themselves and are filled with that discovery. Still others have moved on to the stage of active and angry competition with any and all, but especially with those they perceive as being the cause of their delayed awakening. There is tension in the land, and already many of us are disposed toward seeking some conflict resolution.

Stage three is the development of conflict resolution mechanisms that will serve the need of all to survive in peace, to relieve the uncomfortable tensions. This is the stage where alliances are sought, understanding pursued, and communications between groups learned.

Stage four occurs when all or most have learned to cope with diversity, the conflict resolution mechanisms are in place, and each group begins to seek and recognize the positive elements in diversity.

Finally, multiculturalism is achieved when there is a general celebration of diversity, a joy in knowing and respecting differences, and when communications between cultures are regular and meaningful.

Our world of the future will achieve multiculturalism, both out of necessity for mutual survival and because there are already signs of the shifts in values that indicate desire and conviction. In this country, a growing body of literature recognizes cultural pluralism as a fact and multiculturalism as a goal. The rapid growth of bilingualism is but a first step toward multilingualism, and the quickening pace of including cultural awareness as a necessary dimension of the curriculum predicts continued movements toward the achievement of multiculturalism.

The American Association of Colleges for Teacher Education (AACTE), in the exercise of its leadership role, created a Commission on Multicultural Education that produced a policy statement called "No One Model American." The statement was adopted officially by AACTE in 1972 as a guide for policy discussions. An earlier effort by the National Study of School Evaluation (NSSE) produced a set of evaluative guidelines to be used throughout the nation as part of regular secondary school evaluations by the various accrediting agencies. It is interesting to note the twelve educational principles NSSE adopted that it believed would characterize good multicultural/ multiracial education:

1. Multicultural/multiracial education recognizes a significant diversity of students; therefore programs for students should be highly individualized.

2. Estimates of ability should be based on results and instruments that have minimal socioeconomic, class, or cultural bias.

3. The school should recognize and value different learning styles, different vocational goals, and different life purposes. It should not insist upon a universal "best model."

4. The processes by which students learn social behaviors should emphasize and value diverse cultural definitions of these behaviors.

5. While insisting upon behavior which is neither antisocial nor hostile to any other group, the school must be tolerant of behavioral differences.

6. The school should not attempt to devalue or expunge the cultural or racial heritage of any student, staff member, or member of the community.

7. Teaching methodologies which instruct a student in his own culture may differ from those which instruct him in another culture. The school staff is sensitive to when and where each of these kinds of methods is appropriate.

8. Teaching methodologies should place high priority upon building a sense of personal worth in each student, both as an individual and as a member of a distinct cultural/racial group.

9. The instructional program should serve the needs and aspirations of each cultural and racial group within the school, without violating the integrity of any other group.

10. The school should provide a program in which all students learn about and come to appreciate cultural and racial differences.

11. Students should be given practical opportunities to express, celebrate, and maintain cultural and racial differences.

12. The school should distribute resources, power and prestige equitably among its cultural and social groups.[8]

Implicit in such an educational program, we believe, will be a strong program of multilingualism, since we have placed communications at the center of all interpersonal exchanges. We do not mean a mere revival of the teaching of foreign languages in the traditional manner, which all but eliminated languages as a field of study in most American schools and set up a cluster of resistences that will be difficult enough to overcome as we move into the multilingual future. Languages should be taught early and in situational settings. This means that schools must introduce children to multilingualism at the outset of their educational careers and do so in a setting devoted to multicultural realities. For too long we have stressed U.S. and Western European history and the white, Anglo-Saxon, Protestant version of that history. Multiculturalism will demand a much broader perspective.

Before we leave the topic of multiculturalism, we must acknowledge that the progression into the future we have predicted may seem too optimistic to some. As in a programmed learning text, we may suggest here a "branching" that deals with a less optimistic appraisal. Certainly it is possible to perceive racial, cultural, and religious tensions of considerable moment both in the U.S. and the world. Oppression of minority groups still exists despite some attempted changes. The cycle of cruel racial and cultural discrimination continues and breeds "reverse" racism which, in turn, recontaminates the "changed" racist. No one wants to give in. Bitterness abounds, and compromise seems remote. Will Catholic and Protestant Irish ever be able to live together? Will Israelis and

Arabs ever be able to settle their differences? Will the war in Southeast Asia ever end? Carried to a logical conclusion, such unresolved conflicts will get more intense, and much of the world will be consumed in violence. At that point, two choices seem available: resolve the conflicts or destroy each other and the world. We do not consider it optimism, but rather just common sense, to suggest that conflict resolution will triumph. If that is so, then our "branch" leads us back to the mainstream of our prediction of ultimate multiculturalism. If we are wrong, then there will be no future anyway.

COMMUNICATIONS AND TECHNOLOGY

The child of the future will be a different child than the child of past or present. Gregory suggests that the brain function man has inherited from his biological past has been fundamentally modified by the uniquely human invention of symbols.[9] McLuhan has also claimed that such changes have occured.[10] He suggests that the electronic media in particular are "subtly and constantly altering our perceptual senses," raising the visual above all other senses.

There is little doubt that we are in imminent danger of information overload. Klapp suggests that human information systems should periodically cycle into a closed mode to prevent the possible psychosis of information overload and future shock. But to do this implies some ability to control the flow of human events. It seems doubtful that we can simply stop the world and get off whenever we feel overwhelmed. Three alternatives might be:

1. Control access to the total volume of information generated each day,

2. Forecast information and anticipate its dissemination and absorption, or

3. Prepare future generations to absorb the increased volume of information in some organized fashion.

The first alternative, that of controlling access, is, of course, the easiest to accomplish. Many people already engage in self-regulation; they simply block out information they cannot deal with or do not like. But unpleasant or complex information does not cease to exist just because someone has turned it off. Responsible decision making requires access to all of the pertinent data. Government control of access, or control by private special interest groups, poses a significant danger to democratic freedoms. Yet here we are already in trouble. In the Nixon administration the White House's Office of Telecommunications Policy seemed constantly to favor private ownership of the various communications networks.[12] Such policies seem also to favor private ownership of cable television. The question which arises is, Who controls or regulates such owners? It is not at all far-fetched to imagine that absolute control of the communications industry, and therefore of its developing technology, by any group not severely regulated to ensure that they operate in the public interest could be a prelude to loss of our ability to be informed, to know, to render

judgments on our future. In short, controlling access poses many more dangers than it solves problems.

The second alternative is, in a sense, a variation of control, but offers the opportunity for all to anticipate what may be coming and therefore avoid informational blackouts. Hanneman asserts that information forecasting provides a means of anticipating future message needs of a society or predicting the necessary types of information that will allow smooth social functioning."[13] Information forecasting would provide *essential* information through the most appropriate channels, identifying potential message topics with their relative probabilities of occurrence and their projection over specified time, space, and population distributions. The information forecaster would be equipped to use the resources of communications research and theory, knowledge of the media, and awareness of the population he serves to identify what types of messages should be sent and to what segment of the audience. But, again, the dangers involved make this alternative only partially useful. Some public interest force would need to assure us that the judgments of the forecaster were not tainted with any special interests.

The third alternative, preparing future generations with the skills to absorb increasing volumes of information, seems more difficult to accomplish but, ultimately, the most appropriate to the values we perceive in democratic freedom. Information overload is essentially too many facts, ideas, or other stimuli coming over the circuits without any organization for dealing with them. It is this dilemma to which we have addressed ourselves in this publication. It is our version of the future that schools will first provide the means to communicate, then the skills of organization of thought, the systematic storage and retrieval of information, the ability to utilize such knowledge, and the ability to create new knowledge and new arts all within a framework of viable values and ethics that ultimately celebrate man's basic humanism. We claim the school of the future can do no less.

LANGUAGE THEORY

Clearly, the innovation of the future is the rapidly emerging technology of communications that at once promises opportunities and poses dangers. Let us put the problem in the context of classical communications theory. Weaver sets up three levels of theory:

> Level A. How accurately can the symbols of communications be transmitted? (the technical problem)
>
> Level B. How precisely do the transmitted symbols convey the desired meaning? (the semantic problem)
>
> Level C. How effectively does the received meaning affect conduct in the desired way? (the effectiveness problem).[14]

Immediately we are plunged into the need to make some decisions upon the nature of language as the major form of communications. The technical problem (Level A) is relatively easily solved if we restrict communications to language, since language symbols are not difficult to reproduce and transmit rapidly. Experts in the uses of language can fashion messages to carry out a variety of purposes. Toffler comments that "engineered-messages differ from the casual or do-it-yourself product in one crucial respect: Instead of being loose or carelessly framed, the engineered product tends to be tighter, more condensed, less redundant. It is highly purposive, preprocessed to eliminate unnecessary repetition, consciously designed to maximize informational content."[15]

The key words seem to be "engineered," "purposive" and "informational," since the first two may imply a contradiction of the third. Level B suggests precision, but in a desired direction. What we must discover then is whether or not there is such a thing as totally objective language; that is, a language that if transmitted by a commonly known symbol system will say the same thing to all receivers, with sufficient precision that if we set out to accomplish the transmission of say, a political value, that is indeed what will occur.

This may not be the place to engage in a complex inquiry into the philosophy of language and linguistics, but some assertions seem imperative. Wittgenstein seems to suggest that it is important that we do not continue to believe that language is learned by a naming process.[16] Rather, he asserts that language learning is analagous to a game and that language takes its meanings from behavior (how we employ it in human contexts) rather than from some mysterious essence. In other words, language is situational, experiential, and always both personal and public.

So the difficulty with Level B, and therefore with Level C, is that we do not have anything like a totally objective language. If communications technology is based upon the assumption of such a language, and on the further assumption that language is merely a matter of naming things, then we are in trouble in a number of ways.

First, we may be just plain wrong. In that case we will be ineffective (Level C) because we approached communications incorrectly and built our technology on a faulty premise. This is not to say that such a technology, therefore, would not grow and flourish. Many wrong things grow and flourish; only sometime later do we re-examine the results, because of some disaster, and discover our original error.

Second, implicit in the language-is-naming position is the assumption that the sender and receiver have learned the same rules for using the terms in one system, perhaps even have a common cultural or life experience. This is obviously not true. If language is situational or behaviorally based, or, in effect, dependent upon cultural or life experience, then it would seem that multiculturalism *precedes* multilingualism. In short, can we teach language before experience? On the other hand, if language is a function of culture, can one transmit culture without using language? Learning a culture

is both a cognitive and an affective process. The affective dimension depends upon interpersonal contact; it is both active and reactive, and it colors and shades our understanding of the cognitive. The conclusion we must draw then is that culture and language are inseparable. Further, language has both cognitive and affective dimensions, and it is dependent upon behavior and emotion that are the products of interpersonal relationships.

The communications problem becomes one of dealing with the obvious fact that all people will not have had equal or perhaps even similar experiences. Therefore we cannot expect communications to be some simple process of "hooking up" or "plugging in" two equal elements, which use a common symbol system with common meanings. We may expect not only vast diversity of experiences, or behavioral referents, but varying levels of sophistication of experience. We are immediately reminded of our value position of multiculturalism and therefore must guard against judgments on diversity and levels that imply "better" or "worse," "good" or "bad," "superior" experience versus "inferior" experience.

The technology of visual images--television, movies, etc.--may increase the range of tools of communications available to us, but even these are not necessarily (and, indeed, more often are not at all) conducive to interpersonal contact. The picture phone of the Bell Telephone System would seem to be a more promising direction (although there are, apparently, technological limitations to its development); so is two-way closed circuit television. Laser beams as conduits of such devices are being explored and, in current experiments, seem to offer great feasibility.

The problem of multilingualism in communications is the problem of translation, not just of symbols, but of meanings. There have been attempts to develop translation machines, but in the absence of an objective language essence, their application is limited. The United Nations, for example, still finds it more effective to use live human translators because of the complexity of problems one confronts when crossing from one culture to another. The human brain, thought of as an immense computer, can deal with such complexity with great rapidity and, therefore, is the most effective translator. It can understand both the cognitive and the affective and take both into account.

AN ALTERNATIVE

One can project an alternative future from the current commitment in some quarters to the language-is-naming philosophy. A technology based upon this philosophy is surely easier to devise. But projected to its logical end (admittedly a gigantic leap), we would have to have a one-culture, one-language world with the absolute minimum of confusing and distracting interpersonal relationships. It would be a cognitive impersonal world, perhaps eventually inhabited by creatures like the ones on "Star Trek" who have huge, overdeveloped heads in which they house their superbrains.

We would also have to worry about the less dramatic problem of the rising degree of impersonality in the world. We would begin to have "identity"

crises, and there would be hurriedly called conferences concerning our impending loss of our own humanity. The government might create some special program to encourage the arts and the humanities, reasonably well funded, to balance its prior devotion to the hard sciences and technology. People would worry about the impact of television on children, and educators would wonder how we might deal with the realities of cultural pluralism. Some people would express concern about the rapid growth of the telecommunications industry and the thorny issue of control of such potentially influential devices. Most people would not notice the changes.

POLICY ISSUES

The whole notion of projecting alternative images of the future is based upon the idea that if we can see the alternatives, we can more intelligently make the decisions that will reject one future and encourage another. Policy decisions made and implemented today will shape tomorrow. The policy issues in education regarding the teaching of basic communications today are therefore crucial to the school of tomorrow.

Postman correctly asserts that educating is a political act: "All educational practices are profoundly political in the sense that they are designed to produce one sort of human being rather than another."[17] Those who control the Office of Telecommunications Policy in the White House understand this. Those who control and shape U.S. educational policy, allocating its resources and regulating its practices, also understand. The futurist simply says that if you make this political decision on telecommunications policy or educational policy, then these are the likely consequences; here are the kinds of human beings who are likely to be the product of such decisions. On the other hand, if you make an alternative set of decisions, then here are the alternative kinds of human beings you will produce.

Six policy issues come to mind in the context of this paper:

1. Will multiculturalism be a primary goal of education? We have already outlined what kind of a world we would hope this commitment would produce. Certainly a world of cultural conflict and violence is one of the alternatives.

2. Will humanism be a primary goal of education? Nash will discuss this later in the publication, but its alternative may be an impersonal, inhumane world.

3. If multiculturalism and humanism are primary goals, what kind of basic communications should be taught? Obviously, the policy decision here at least demands that what is taught be consistent with the goals sought. It would appear, then, that basic communications should be multilingual and situationally or behaviorally based.

4. Assuming that telecommunications have already had a profound impact upon the education of children, how should it be utilized to further the goals of multiculturalism and humanism?

5. Who should control the means of telecommunications?

6. How should the formal organizations of telecommunications be linked to the formal organizations of education?

In addition, three technical problems will have to be addressed by educators and technicians:

1. What kind of communications technology needs to be developed that assumes that language is behavioral-situational rather than mere naming?

2. What kinds of educational and communications programs can be designed to produce intercultural understanding and multilingual language behavior?

3. How will education solve the problems of information overload for its students?

Technologically, part of the answer to these problems would seem to lean in the direction of some sort of personalized computer. If Gabor can predict the existence of a computer terminal in every household by 1985, then the problem becomes the skill of the user and the data bank to be tapped.[18] Personalizing such a procedure has already been envisioned; Toffler tells us of OLIVER (On-Line Interactive Vicarious Expediter and Responder), an invention to aid the individual in decision making.[19] OLIVER is our own personal computer, stocked with data pertinent to our life and our problems. It remembers for us, tell us the consequences of what this choice is versus that choice. It is programmed to be responsive to our values and beliefs and, obviously, could respond to other OLIVERs' people. OLIVER also contains the same seeds of impersonality and lack of humanism as any machine. OLIVER cannot love, or hate, or be happy or sad, though it may advise us, if we ask, whom to love or to hate, when we should be happy, or what we should be sad about. Its potential, like any other machine, is what we, as humans, put into it.

Each child, as he proceeded through his educational training, would be building a data bank in his own personal OLIVER, thus giving this computerized assistant his own personal stamp. Input from outside sources would come from an information utility, as handy to the householder as the gas or electric company, or any other public utility. Perhaps the most extensive discussion of the potential information utility is found in Sackman and Nie's *The Information Utility and Social Choice*.[20] It is clear from their discussion that public control of such utilities would be essential if citizen participation and democracy were to continue to be valued. After the scare of Watergate, one might be hesitant to trust any governmental control or supervision of any vital service. There is little doubt that there are dangers involved, but (a) no one ever said democracy did not demand constant citizen attention and (b) the alternative of private control obviously means that someone else is deciding for us, on his terms and in his interest.

IN SUMMARY

We said at the outset that literacy is the central and abiding issue in education, but we extended the definition of literacy to all forms of communications. Implicit in our discussion was the question, Literacy for what? At that point we imposed a value direction by clearly stating that the urban, culturally pluralistic, technological world of the future demanded a commitment to multiculturalism and humanism if man were to survive. Given those goals, and their respective realities, we concluded that communications learning must be multilingual and situationally or behaviorally based.

The communications program of the future, then, is a point and counterpoint of multiculturalism and multilingualism, of both words and visual images, presented both technologically and interpersonally. Mindful of the dangers of information overload on the one hand, and thought control on the other, we suggested the utilization of personal computers and information utilities. The clear goal is to produce a person who can perceive truth and make choices based upon such truth within a value system that honors pluralism, man, and peace.

Achievement of this alternative future enjoins teacher education to provide to the schools and to the information utilities teachers who share the value commitments and have the professional and technical skills to manage instruction in multilingual communications. The production of any less literacy is hardly enough to survive in our vision of the future.

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TEACHING PEOPLE TO THINK: A PHILOSOPHICAL AND FUTURISTIC ANALYSIS

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A central fact educators must face is that our future will be very unlike the present. Without great difficulty, our imaginations can conjure up a vast array of futuristic possibilities: artificial foods, cities run on atomic power, genetic engineering, interplanetary landings, three-day work weeks, computerized robots, and centralized information banks. Similarly, we can contemplate the dangers of overpopulation, energy and material shortages, and the proliferation of lethal atomic weaponry. As we race headlong into a rapidly changing world, we must reexamine our current practices in view of the potential problems and opportunities that lie ahead. We will create our own future through the choices we make. It may be a future enlightened by our vision or darkened by our ignorance.

Our educational programs will either prepare people to cope imaginatively with the future or will constrain them in that task. Indeed, one of our central problems in that preparation will consist of how we teach people to think critically and creatively for the future. Educators, in planning their curriculum, most confront the truly problematic question, How should we teach people to think for the future? Thus, the purpose of this article is twofold: first, to clarify the notion of "teaching people to think" as it is embedded in ordinary language and in two important views of education--Dewey's inquiry model and the traditional discipline model; and secondly, to develop several pedagogical and curricular guidelines in teacher education that would flow from a concern for "teaching people to think for the future."[1]

"TEACHING PEOPLE TO THINK"--ITS MEANINGS IN ORDINARY LANGUAGE

We have often heard the claim that the function of the schools is to teach people to think. Nevertheless, the phrase "teaching people to think" remains an empty slogan if it is not explicated. One can claim that "thinking" in several of its ordinary usages is not happily married to the notion of "teaching." For example, one might say, "He was thinking about his fascinating tour of Greece last summer." In this context, the term "thinking" means "recollecting" or "recalling." While it may involve forming ideas or images in the mind, one does not have to be taught how to recall or recollect something. Similarly, one might say, "John was thinking what it would be like to be in Tahiti right now." In this context, thinking might involve imagining, fantasizing, or daydreaming. In considering the term "thinking" in any of its various senses of "recalling," "imagining," "musing about," "daydreaming," "recollecting," or "fantasizing," one would conclude that the notion of "teaching people to think" seems to be a very odd notion indeed. Thinking, in any of the senses already suggested, is as spontaneous and natural as breathing or sleeping, and, quite obviously, we do not need to be taught how to breathe or sleep.

Many senses of the term "thinking," asserts Dewey, refer to an "uncontrolled coursing of ideas through our heads." He writes:

> All the time we are awake and sometimes when we are asleep, something is, as we say, going through our heads. When we are asleep we call that kind of sequence "dreaming." We also have daydreams, reveries, castles built up in the air, and mental streams that are even more idle and chaotic. To this uncontrolled coursing of ideas through our heads the name of "thinking" is sometimes given. Many a child has attempted to see whether he could not "stop thinking"--that is, stop this procession of mental states through his mind--and in vain. More of our waking life than most of us would care to admit is whiled away in this inconsequential trifling with mental pictures, random recollections, pleasant but unfounded hopes, flitting half-developed impressions. Hence it is that he who offers "a penny for your thoughts" does not expect to drive any bargain if his offer is taken; he will only find out what happens to be "going through your mind" and what "goes" in this fashion rarely leaves much that is worthwhile behind.[2]

While Dewey does not legislate a divorce between the nonreflective and reflective senses of the term "thinking," he clearly believes that the former are not educationally significant.

The reflective sense of the term "thinking" is often confused with another sense--"believing" Ryle writes:

> It is a vexatious fact about the English language that we use the verb "to think" both for the beliefs or opinions that a man has, and for the pondering and reflecting that a man does; . . . To think, in the sense of "believe," is not to think in the sense of "ponder."[3]

The sense of "thinking as "believing" is another that is infelicitously linked with the notion of "teaching."

One might say, for example, that "James thinks that President Ford was unwise in pardoning Richard Nixon." This thought, however, is a belief that makes no claim to any prior activity of reflection or instruction. When talking about "teaching people to think," we are seldom, if ever, referring to the inculcation of specific beliefs, although we are probably referring to the ability to justify the beliefs one does hold.

Having argued that the senses of thinking as "recollecting," "imagining," "fantasizing," and "believing" are not happily married to the notion of "teaching," we must focus on the sense of the term that can be fruitfully joined with instruction. "Thinking" can denote a serious, deliberate activity involving a skill or ability that may be improved by effective teaching. Terms such as "reflecting," "pondering," or even "planning" suggest this sense of thinking. All of these notions point towards the most important component of the reflective sense of thinking--skillful reasoning. Thus, in the remainder of the article, thinking will be viewed as reflection, especially the kind of reflection that involves skillful reasoning.

We must still resolve, however, how we will view the notion of "thinking as reflection." Two important models of education can be used to illustrate contrasting views of thinking as reflection. Borrowing I. A. Snook's titles, we shall call them "the inquiry model" and "the discipline model."

THE INQUIRY MODEL

In the inquiry model, a central assumption is that thinking can be viewed as a set of special skills that can be learned in isolation from the specific disciplines and the traditional bodies of knowledge. Put another way, one could view the skills of thinking as those competencies that cut across the disciplines and are logically distinct from them.

A paradigmatic expression of the inquiry model is found in Dewey's early work *How We Think*. Here Dewey spells out what genuine thinking, what he calls "reflective thinking" (or sometimes "reflective thought") consists of: "active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends."[4] In reflective thinking, validating and justifying one's beliefs through testing and inference is all-important. "Thinking . . . remains just what it has been all the time," Dewey asserts, "a matter of following up and testing the conclusions suggested by the facts and events of life."[5]

While Dewey did not view reflective thinking as the natural development of biological tendencies, he recognized "an innate disposition to draw inferences, and an inherent desire to experiment and test."[6] Dewey believed that structured educational experiences involving the child in creative and active problem-solving activities could nurture and transform a person's natural abilities and inclinations. "The real problem of intellectual education," he asserts, "is the transformation of more or less casual curiosity and sporadic suggestion into attitudes of alert, cautious, and thorough inquiry."[7]

Although Dewey was concerned that certain attitudes such as care, attentiveness, and thoroughness must accompany reflective thinking, he did not always distinguish between the development of these attitudes and fostering methods of reflective thinking. He writes:

> . . . it is evident that education, upon its intellectual side, is vitally concerned with cultivating the attitude of reflective thinking, preserving it where it already exists, and changing looser methods of thought into stricter ones whenever possible.[8]

We might legitimately ask why Dewey does not distinguish between *preserving and cultivating an attitude* and *changing methods of thought*. Surely they are different sorts of things. However, a dualism between attitudes and methods of thought would likely have struck Dewey as a false one. Rather, he united these components through the notions of "habits of thinking": "Upon its intellectual side education consists in the formation of wide-

awake, careful, thorough habits of thinking."[9] His choice of adjectives indicates the attitudinal component essential to genuine thinking as reflection.

By "habit," Dewey did not mean a "routine way of acting." He sought to distinguish between habits that were informed by intelligence and those that were not. Of the latter he wrote:

> Habits reduce themselves to routine ways of acting, or degenerate into ways of action to which we are enslaved just in the degree in which intelligence is disconnected from them. . . . "bad" habits are so severed from reason that they are opposed to the conclusions of conscious deliberation and decision.[10]

In contrast to these uninformed habits, informed habits denote intellectual dispositions and incorporate into themselves modes of reflective thought as "forms of skill and of desire."

> A habit . . . marks an intellectual disposition. Where there is a habit, there is acquaintance with the materials and equipment to which action is applied. There is a definitive way of understanding the situations in which the habit operates. Modes of thought, of observation and reflection, enter as forms of skill and of desire into the habits that make a man an engineer, an architect, a physician, or a merchant. . . . there are habits of judging and reasoning as truly as of handling a tool, painting a picture, or conducting an experiment.[11]

We might view Dewey's model of reflective thinking as consisting, in part, of a programmatic definition of the term "habit." Without doubt, this central concept, as Dewey tried to elevate it above the ordinarily neutral and negative shadings it has in ordinary language, became a unifying notion. Through it, Dewey tried to bring together in harmonious unity the biological and intellectual sides of our nature, the formal dimension of critical thinking and its organic roots, our rule-like behavior and our problem-solving intelligence, our instinctual insights and our elevated capacities for abstract reasoning. The processes of education, in Dewey's view, either contributed to the development of informed, intelligent habits (and thus were successful) or they did not (and were unsuccessful). For Dewey, the transformation of uninformed, routine habits of thinking and acting into informed, enlightened habits of reflective inquiry, i.e., genuine thinking, was the goal of education.

At the core of the inquiry model, then, is the belief in a *general habit of reflective thinking*-- a metaphysical belief that can neither be proved nor disproved by empirical investigation. Based on this belief, Dewey's model can be seen as essentially a paradigm of practical, scientific problem solving. Dewey claimed that reflective thinking, i.e., problem solving, consisted of five phases:

> (1) *suggestions,* in which the mind leaps forward to a possible solution; (2) an intellectualization of the difficulty or perplexity that has been *felt* (directly experienced) into a *problem* to be solved, a question for which the answer must be sought; (3) the use of one suggestion after another as a leading idea, or *hypothesis,* to initiate and guide observation and other operations in collection of factual material; (4) the mental elaboration of the idea or supposition as an idea or supposition (*reasoning* in the sense in which reasoning is a part, not the whole, of inference); and (5) testing the hypothesis by overt or imaginative action.[12]

These five phases do not have to follow one another in a set order, and in many practical cases, one or more of them might be either contracted or expanded. Nevertheless, the movement from perplexity to the conceptualization of a problem and a mode of dealing with it and finally to the resolution of the problem was the movement of reflective thinking. Thus, reflective thinking becomes a form of inductive problem solving beginning in a pre-reflective state of doubt, perplexity, or mental difficulty, becoming an act of searching or inquiring to find material or other means to resolve the doubt, and, if successful, ending in the solution of the problem and the removal of the perplexity. As Dewey asserts, "Demand for the solution of a perplexity is the steadying and guiding factor in the entire process of reflection.[13]

CRITICISM OF DEWEY'S INQUIRY MODEL OF GENUINE THINKING

Some analytic philosophers have criticized Dewey's views on reflective thinking by arguing that he is not using the term "thinking" as it is employed in ordinary language. Ryle writes, for example, that "we should not assume, either that all thinking is trying to settle problems, whether theoretical or practical." Similarly, Scheffler asserts that "in musing, recollecting, or imagining, one is thinking though not necessarily solving problems."[15] While Dewey was aware of the multiplicity of senses the term "thinking" has in ordinary language, he provides a *programmatic* definition of "thinking" by linking it to a scientific problem solving model of reflective inquiry. His model is not a model of how the term "thinking" is used in ordinary language; rather it is a paradigm of how genuine intellectual activity should be viewed. Into it are built the attitudinal components of deliberateness, care, alertness, and practical utility that Dewey found essential in serious inquiry.

Although Dewey should not be faulted for providing a programmatic definition of "thinking," several criticisms might be leveled at the Deweyan inquiry model. First, it overemphasizes the practical origins of the doubt or perplexity that stimulates reflective thinking. In so doing, it does not give enough credit to the purely theoretical origins of much higher-level scientific theorizing.

> Scientific theories do not, generally, grow out of practical activities; they are embedded in complex intellectual structures linked only indirectly, and as wholes, to contexts of evidence and experiment. Their assessment is intimately dependent upon these intellectual structures, and involves, aside from practical efficacy, theoretical considerations bearing on their

relative simplicity, naturalness comprehensiveness, elegance, and connectibility with associated structures.[16]

In other words, the Deweyan model does not account for either the origins or the evaluation of many scientific theories. Secondly, it does not place enough emphasis on the dependence of many scientific problems on the language, methodology, and rules inherent in the "intellectual structures" or disciplines in which these problems emerge. Third, it does not pay enough attention to nonscientific problems, such as those created by conceptual confusion or logical inconsistency, and thus diminishes the role of deductive logical reasoning in reflective thinking. Finally, while it emphasizes the adaptive role of thought as the means by which man can cope with environmental difficulties, it does not place enough emphasis on the immensely valuable role imagination can play in constructing speculative or hypothetical problems.

THE DISCIPLINE MODEL

The discipline model emphasizes that reflective thinking is not a skill that can be isolated from the subject matter with which it is dealing. Furthermore, it rejects any attempt to reduce the multiplicity of skills that might be regarded as components of reflective thinking to a single generalizable skill or habit. In so doing, it rejects an approach to thinking that regards problem-solving behavior as not being dependent upon intellectual as well as practical contexts in which problems emerge.

In the discipline model, education is viewed as the initiation of pupils into the "forms of thought embodied in the various established disciplines," and the notion of "teaching pupils to think" means "teaching them the various disciplines or at least a selection of them."[17] In contrast to the inquiry model of thinking, the discipline model rejects the premise that reflection consists of a general habit or a generalized skill that cuts across the disciplines. An advocate of this model would argue that a person does not learn how to reflect in general nor solve problems in general. Rather he learns how to think mathematically, historically, philosophically, scientifically, etc. Instead of emphasizing the components of thinking that might overlap with other disciplines, the advocate of the discipline model would call attention to the unique quality of inquiry that operates within each discipline. He would not be wearing the glasses of similarity but the glasses of differences.

The central characteristics of the discipline model--the model that seems to be the predominant structural model for organized research in today's universities--can be summarized as follows:

1. Established sets of boundaries for separating research in one discipline from research in another,

2. A body of distinctive knowledge appropriate for initiation into its own form of thinking,

3. A claim to distinctive explanatory theories and special methodological tools for solving its own category of problems,

4. Established standards for judging professional research, and

5. A rigorous system for training its inductees to engage in research and to teach in the discipline.

In most cases, with history standing out as an important exception, mastery of a special disciplinary language as a system in which key concepts are embedded is another central characteristic of learning to think reflectively within a discipline. Unfortunately, the special patterns of communication that characterize so many disciplines have constrained, if not prevented, communication between members of different disciplines and have removed the research of these disciplines from the easy access of the uninitiated.

If one does not learn a general habit of reflective thinking as a means of learning to think within a discipline, what must one learn to engage in reflective thinking as a would-be initiate into a discipline? In other words, do there seem to be any generalizable prerequisites for disciplinary thinking? I would suggest three central requirements, which, though they overlap, should not be confused with each other:

1. One must become familiar with much of the central knowledge that has been accumulated.

2. One must learn the rules underlying the standard patterns of communication, the rules governing the use of methodological tools employed within the discipline, and some of the effective strategies employed for doing research.

3. One must learn the norms for judging the intellectual performances of others engaged in the same discipline.

CRITICISM OF THE DISCIPLINE MODEL

A strength of the discipline model lies in its emphasis upon a rigorous intellectual training involving a mastery of methodological and conceptual rules. In learning how to play the "game" of history or philosophy or mathematics, one learns what moves are allowed, what strategies are effective, what problems are important, and what skills have been masterfully employed in past performances. If each discipline is taught as revealing the way the "game" is played and how it can be played well, the pupil learning the "game" will learn how to think as a fellow participant.

> The pupil examines each discipline as composed of various attempts at a certain type of thinking. He is thereby helped to see the traps into which the experts have fallen and is encouraged to practice his own skills on the material before him.[18]

One central weakness of the discipline model lies in its deemphasis on the attitudinal dimension of reflective thinking within disciplines and its simultaneous emphasis on the development of skills for their own sake. Here the analogy with "games" is again appropriate. Games are played for fun, for aesthetic enjoyment. On the other hand, in asking for a justification for disciplinary research, one would expect a response quite different from the answers "it's fun" or "it's an enjoyable way to kill time" that one might hear from a player of a game. While Dewey was accused of overemphasizing the utility of intellectual inquiry, he was correct in emphasizing the attitudinal dimension of reflective thinking. Intellectual skills can be used wisely or unwisely, to score academic points or to make social contributions, to serve one's own narrow interests or to illuminate the thinking of others. Too often the members of a discipline can be justly accused of misusing their talents and allowing their potentially valuable skills to be used solely for scoring academic points in their esoteric games.

Passmore makes a very useful distinction between the skills of critical thinking and what he calls "the critical spirit."[19] The skills of critical thinking can be misused but "the critical spirit" cannot, for it is more like a character trait than a skill. With the skills of critical thinking one can make critical judgments about the achievement level of performances in which one has been trained to engage, but without the critical spirit, one cannot look critically at the value of the performances themselves. "To exhibit a critical spirit," Passmore asserts, "one must be alert to the possibility that the established norms themselves ought to be rejected, that the rules ought to be changed, the criteria used in judging performances modified."[20] Passmore's distinction between the critical spirit and critical skills calls our attention to the second weakness of the discipline model--its general unwillingness to call into question its own taken-for-granted assumptions, values, and practices.

SOME COMMON PRINCIPLES UNDERLYING THE INQUIRY AND DISCIPLINE MODELS

Both the inquiry and discipline models give meaning to the notion of "teaching people to think," although their meanings differ. Nevertheless, since both models are essentially concerned with the notion of "thinking" as "reflection" or "rational deliberation"--a process that involves the skills of practical and theoretical reasoning--it would be appropriate to extrapolate some basic principles that both models seem to share.

1. There are some spontaneous modes of thinking, such as recollecting, musing, and daydreaming that are not, in themselves, educationally significant.

2. Some kinds of rational deliberation to which we give the name "thinking" involve a crucial element of skill or ability that can be improved through appropriate forms of formal instruction or structured educational experiences.

3. There is no simple formula, gimmick, or set of educational recipes for developing the higher-order skills or inductive scientific problem-solving and deductive theoretical reasoning.

TEACHING PEOPLE TO THINK FOR THE FUTURE

One of the common criteria with which people have long discussed the value of education--preparing students for life--must now be re-examined in light of our uncertainty about what the future holds in store for us. Unlike the Amish, we as educators cannot afford to cling to the view of education as the initiation of children into a relatively static society of fixed customs and stable adult roles. The society of the future will most certainly be a society of changing customs and of fluid adult roles. To persist in our image of a relatively static society is to delude ourselves and to threaten the kind of constructive adaptation we can make to the complex problems we shall face in the coming decades. In a world characterized by social and political instability, rapid technological innovation, and increasing experimentation with alternative life styles, it is becoming less and less clear on what basis we might claim that someone (whether he was 16, 20, or 30) was prepared for life in U.S. society. In a world wherein social, intellectual, and technological changes have become commonplace, the outposts of social and intellectual permanence seem more and more difficult to locate. Thus, the task of preparing teachers to prepare students must be reexamined. What kind of a world will these students be prepared for? What kinds of intellectual skills will they need to cope with the world of the future? What kind of academic curriculum will develop not only job-related but life-related competencies necessary for both effective coping with the environment and creative adaptation of the environment? It is in response to these sorts of futuristic considerations that educators must reexamine the task of preparing teachers to prepare students.

Discussing the potential crises of tomorrow's world, North stresses the necessity of man's pursuing "alternate patterns for the future."

> Overpopulation, the unanticipated (and destructive) consequences of technology, the depletion of critical resources, and the threat of mass weaponry are factors of extraordinary importance to human kind now and in the immediate future. Changes are taking place more rapidly, moreover, than the ability of human institutions (or even the individual psyche) to keep up and adjust. The possibilities of mass starvation, bitter competition for scarce resources, domestic and foreign violence and widespread destruction cannot be ignored. . . . Man needs to alter his ways and time is short. He needs to develop alternate patterns for the future."[21]

To pursue and consolidate the status quo in education is to choose *not* to develop alternate patterns for the future. Without doubt, it is a choice fraught with danger. In this part of the paper, several guidelines for new directions and emphases in teacher education will be proposed that grow out of a reconsideration of the notion of "teaching people to think for the future."

If educators are to work towards developing alternate patterns of education for the future, one of their starting points must be a serious

consideration of the question, How should we teach people to think for the future? Shall we conceive of "thinking for the future" through the lenses of the Deweyan model or through the perspective of the traditional discipline model? The discipline model, unlike the Deweyan, offers the advantage of well-developed intellectual structures and established explanatory theories. The Deweyan model offers the advantage of a concern for the practical implications of the problems it deals with and the results it achieves. It deemphasizes the higher-order skills of theoretical reasoning that are tied to well-developed disciplinary structures.

At the lower levels, we must opt for the Deweyan model of problem solving and at the higher levels adapt the discipline model to encourage interdisciplinary research and cooperation. The Deweyan model, historically, has been corrupted by many educators who have emphasized "knowing how to" to the exclusion of "knowing that." The discipline model has been similarly corrupted by many educators who emphasize "knowing that" to the exclusion of "knowing how to." Whatever approach is taken to "teaching people to think for the future," educators must remember that there is seldom an easy road to an elevated height. The complex achievement of "learning to think for the future," however that notion is conceived, will not be arrived at easily. Simplistic answers, catchy slogans, and easy gimmicks will not aid educators in helping people to think critically and creatively for the future.

The guidelines presented here for new directions and emphases in programs of teacher education are neither heretical nor radical, for they have been emphasized in a variety of forms before. Neither are they "how-to-do-it" recipes to ensure more critical and creative thinking about the future. Rather, they are an attempt at revitalizing and extending the Deweyan model of "reflective thinking" to place it in a futuristic context.

A DEEMPHASIS ON TEACHING INFORMATION AS AN END IN ITSELF

The first guideline in teaching teachers to teach people to think critically and creatively for the future is to deemphasize a style of teaching in which information is learned as an end in itself. First, what do we mean by the term "information"? Oakeshott explains it as follows:

> The component of "information" is easily recognized. It is the explicit ingredient of knowledge, where what we know may be itemized. Information consists of facts, specific intellectual artefacts (often arranged in sets or bunches). It is impersonal (not a matter of opinion). Most of it is accepted on authority, and it is to be found in dictionaries, manuals, textbooks, and encyclopaedias. It is the appropriate answer to questions which ask: who? what? where? how long? how much? etc.[22]

Typical pieces of information are the date of the Declaration of Independence and Abraham Lincoln's birth, the molecular weight of carbon, the drinking age in Missouri, the average amount of time most Americans spend in school, the seating capacity of Shea Stadium, and the charges against Richard Nixon

in the articles of impeachment drawn up by the House Judiciary Committee. While information of this sort may be an ingredient in some forms of knowledge, it remains to be interpreted and applied before it can yield anything more than answers to trivial questions.

In 1916 Dewey argued that the accumulation and acquisition of information was both overemphasized and misdirected in the traditionalist approach to education that dominated the schools.

> The accumulation and acquisition of information for purposes of reproduction in recitation and examination is made too much of. "Knowledge," in the sense of information, means the working capital, the indispensable resources of further inquiry; of finding out, or learning, more things. Frequently it is treated as an end itself, and then the goal becomes to heap it up and display it when called for. This static, cold-storage ideal of knowledge is inimical to educative development. It not only lets occasions for thinking go unused, but it swamps thinking. No one could construct a house on ground cluttered with miscellaneous junk. Pupils who have stored their "minds" with all kinds of material which they have never put to intellectual uses are sure to be hampered when they try to think. They have no practice in selecting what is appropriate, and no criterion to go by; everything is on the same dead static level.[23]

Unfortunately, almost sixty years after Dewey's insightful statement was written, we find ourselves plagued by far too many courses embodying the "static, cold-storage ideal of knowledge." Too many teachers do exactly what Dewey protests against--treat information as an end in itself. Amidst a rapid expansion of information, a proliferation of books, articles, and journals, and the development of improved computer memory banks, a man's role as a storehouse of miscellaneous information has been increasingly diminished. One who has learned a variety of miscellaneous information without learning the rules for judging information as relevant to questions, hypotheses, and claims has been cheated in his formal education. We must remember that data do not select or interpret themselves; neither do they put themselves to intelligent use. Data unused and uninterpreted remain, as Dewey suggests, on a "dead static level," cluttering up one's mind.

TEACHING STUDENTS TO IDENTIFY AND CORRECT MISTAKES IN THINKING

If we want to extend the notion of "teaching people to think" into a futuristic framework, we must consider how we teach students to deal with mistakes. As we have suggested, some kinds of mistakes, namely those that provide the wrong datum of information to questions such as "who?," "where?," "when?," "how much?" etc. should not be emphasized in teaching people to think for the future. We should be much more concerned with mistakes in thinking. If, for example, one should say that "John was mistaken in his thinking on that subject" one might be suggesting that one of three types of thinking errors had been made:

1. John had made a logical error in his thinking; perhaps he claimed something at the end of his argument that was logically inconsistent with his fundamental thesis.

2. John had made a methodological error; perhaps the conclusions he drew were not warranted by the limited data he had employed.

3. John had misconceived the problem altogether; perhaps he had begun his inquiry with a question that was not well thought out.

In teaching people to thinking critically for the future, teachers must teach people not only *that* they have made mistakes, but *why* they have made them and *how* similar kinds of mistakes can be avoided in the future. Effective thinking entails the capacity for self-correction. Too often students leave courses and leave formal education altogether not with a deeper understanding of the kinds of mistakes they have made and how they might be avoided but with a feeling they had not given the teacher the "right answers," i.e., those things the teacher wanted them to say.

TEACHING PEOPLE HOW TO ASK PRODUCTIVE QUESTIONS

In his preface to *Principia Ethica*, the English philosopher Moore wrote:

> It appears to me that in Ethics, as in all other philosophical studies, the difficulties and disagreements, of which its history is full, are mainly due to a very simple cause: namely to the attempt to answer questions, without first discovering precisely *what* question it is which you desire to answer.[24]

We have all experienced the feeling of total ignorance in encountering a subject about which we knew almost nothing. Part of that feeling of ignorance consisted of our intuition that we could not ask a single intelligent question to the person addressing himself to the subject. On the other hand, most of us have experienced quite the opposite feeling in subjects wherein we have read widely and about which we have spent much time in reflection. With regard to these subjects we have the secure feeling that we know what many of the important questions are and why they are important.

In too many courses students acquire the belief that teachers ask the questions and students answer them. Seldom are students initiated into the art of asking productive questions and examining the difference between a productive question and an unproductive one. The starting point of the Deweyan inquiry model of reflective thinking consists of transforming doubts or practical difficulties into questions. Similarly, in the discipline model, one presumably learns the central questions that have prompted crucial writings and research and also learns how to ask the kinds of questions that will promote stimulating new research. Nevertheless, neither model examines very deeply how one learns to ask the right questions; indeed, the art of asking the right questions, the truly productive questions, involves a felicitous merging of both analytical and creative skills. The blend of analytical and imaginative

thinking that goes into conceptualizing problems through questions is what Passmore calls "critico-creative thinking." It has always seemed to me that the truly brilliant teacher had ways of initiating his students into the kind of critico-creative thinking that enabled them to generate their own questions and to distinguish those questions that were appropriate starting points of inquiry from those that were not.

In teaching people how to think critico-creatively for the future, the art of asking productive questions is immense, for the way in which we approach the problems of the future is indeed limited by the way in which we conceive them. Consider, for example the difference between the following two questions: (a) What will life be like in the year 2,000? and (b) What problems might be created by the ability to perform successful heart transplants on a routine basis? Question (a) requires broad imaginative thinking on a very general level. It might be thought of as part of the first stage of generalized reflection about a broad area of concern--the emergence of a world different from the one we are now experiencing. Question (b) initiates one into a second stage of critico-creative thinking wherein one can focus upon particular changes brought about by a specific breakthrough in technology. Question (b) might easily provide a focus for a critical discussion of questions such as the following: Who should have the right to an extended life? How might the meaning of death change in the future? What are the ethical implications involved in any major technological development. While question (a) might promote broad, imaginative speculation and prediction on a generalized concern, question (b) would provide a focused starting point for dealing with the realistic problems of the future.

The historian's skill in asking productive questions might be applied to help students ask useful questions about the future. Historians often deal with particular policies and programs. They ask questions about a policy such as, Who favored it and why? How was it implemented? and What were its initial effects? To inquire into the origins of specific policies, the beliefs people had about them, the kind of opposition they met, and the significance of their implementation involves historical questioning and interpretation. Similarly, thinking about hypothetical policies and programs that have yet to be adopted or implemented involves critico-creative questioning and futuristic speculation. While we should not confuse historical investigation with speculative inquiry, we can point out that both involve the art of asking productive questions as their starting point. Just as the ideas, visions, and projections of the past became the present, so will many new ideas, visions, and projections about the future become the present. Teachers can aid students to think reflectively about the future by encouraging them to consider the kinds of problems, the nature of opposition, and the possibilities for implementation that surround innovative and hypothetical policies for alternate futures. Formulating productive questions about such policies would demand the kind of critico-creative questioning that is clearly a central skill in the art of good teaching.

A DEEMPHASIS ON PUZZLES IN PEDAGOGY

In examining the art of asking productive questions from a pedagogical perspective, one should clearly distinguish between two typical kinds of questions asked by teachers in their classes. Using the term "problems" rather than "questions," Passmore clearly distinguishes between the two types and assesses their respective role in preparing students for the future.

> Problems fall into two broad classes; those to which the answer is known to the teacher but not to the pupil, and those to which the answer is known neither to teacher or pupil (One should add that the very existence of the problem is not, normally, known to the student. One of the educator's tasks is to make his students puzzled.) Most of the time the teacher will be putting before his pupils a problem to which in fact the answer is already known. His pupils come to be practised in the regular methods of tackling this class or problem, in the intelligent application of accepted procedures. *But the teacher should certainly place special emphasis, so far as he can, on problems to which the answer is not known, or is a matter of controversy--only in that way can he prepare his pupils for the future.*[25] [italics mine]

Teachers must be taught to distinguish between the "puzzles" they ask the class in their attempt to get their students to say "the right thing" and the open-ended questions to which there is no simple right or wrong answer. Too often teachers have not been taught or encouraged to generate serious intellectual curiosity in their students by asking questions to which they have no answers; yet how often have they succeeded in stifling intellectual curiosity by promoting well-conditioned "fishing-for-what's-on-the-teacher's-mind" behavior. How often has a student's bewilderment not been the product of an involvement with a penetrating question that had no "right" answer but rather the result of his not being able to figure out what his teacher wanted him to say. Our answer, if we are truly honest about our goal of developing critico-creative thinking for the future, is obvious--much too often.

In emphasizing the art of asking productive questions and in distinguishing "puzzles" from open-ended questions, a principle of pedagogy emerges. Passmore defines it and explains it as follows:

> *The crucial principle seems to be: wherever possible and as soon as possible, substitute problems for exercises.* By a problem I mean a situation where the student cannot at once decide what rule to apply or how it applies, by an exercise or situation in which this is at once obvious. Thus, for example, a piece of English prose to translate into French is a set of problems involving that imaginative insight checked by facts characteristic of critico-creative thinking; a set of sentences for translation into French at the head of which the child is told that he is to use in each case the imperfect subjunctive--assuming the sentences otherwise contain no novelties--is an exercise.[26] [italics mine]

One might want to add a Deweyan corollary to the Passmore principle. *Whenever possible and as soon as possible, make the problems suit the student's interest and ability.*

INTERDISCIPLINARY THINKING FOR THE FUTURE ON EDUCATIONAL POLICY ISSUES

A crucial dimension of teaching people to think reflectively for the future involves the creation and implementation of policies. Here schools of education might well take the lead, for in recent years attention has been focused upon the paradoxical situation confronting educational policy makers: the necessity of receiving an education conflicts with the widespread failures of many public schools to educate children effectively. Indeed, the gap between the ideal of universal education and the reality of compulsory schooling practices and achievements seems to grow wider with each new report on the schools. Thus, amidst a chorus of despairing voices and the rhetoric of educational disenchantment, educational policy makers must reexamine the nature and direction of our massive educational enterprise and plan policies for the future. Not only will their conception of the future affect the kinds of policies they produce but their policies will affect our educational future.

In the creation and implementation of policy, educators must learn how to think critically and creatively about the future, and in this area the discipline model needs to be supplemented. Each discipline enables us to see a problem through its own tinted glasses; each discipline provides a particular perspective on problems--economic, sociological, historical, etc. Nevertheless, it is clear that educators planning policy should not divorce its economic future from its sociological one but should rather bring as many dimensions of its future into harmony with each other. Policy makers need a variety of glasses to gain a multi-dimensional view of the problems they confront and the alternative means of dealing with these problems. What is necessary, at the very least, is an educational structure that promotes interdisciplinary cooperation and interaction in dealing with educational policy. We might go one step further and suggest that educators bridge the gap between disciplinary thinking and Deweyan practical problem solving. Educators face the challenge of drawing upon the advanced methodologies and explanatory theories emerging in different disciplines and making them relevant as well as accessible to would-be teachers. Perhaps, we would be asking too much of educators to demand that they develop the kind of interdisciplinary training that would enable them to apply multiple intellectual perspectives to complex practical problems. Yet we must ask something of this sort from our educational leaders, for the quality of their vision will color our educational future. Through their choices we will either translate what is desirable into what is actual or hasten what is least desirable into existence.

CONCLUSION

I have suggested several broad curricular and pedagogical guidelines for programs in teacher education. They were put forth not as "how-to-do-it"

recipes for a singular innovation but as the kinds of emphases that would guide educators in preparing for the task of teaching people to think critically and creatively for the future. They can be summarized as follows:

1. A deemphasis on teaching information for its own sake,

2. A concern for teaching students how to identify and correct their mistakes in thinking,

3. An emphasis on teaching people how to ask critico-creative questions,

4. An emphasis on enabling teachers to ask productive questions that promote intellectual curiosity and inquiry rather than closed-ended "puzzles" to which they already possess the answer, and

5. A renewed concern for interdisciplinary interaction and interdisciplinary training in the development of educational policy.

Without doubt, the capacity to construct one's own future is determined by his capacity to think creatively and critically about it. Educators must confront the task of improving this capacity for critical, creative thinking for the future in both students and their teachers. As Dewey pointed out, we are engaged in the ongoing process of reconstructing our experience and reshaping our environment. As we engage in this process, the process of education, we create our own future. Thus, in a real sense, the quality of our educational pursuits will be mirrored in the kind of future we construct.

NOTES

1. I am indebted to I. A. Snook's stimulating article entitled "Teaching Pupils To Think" in Studies In Philosophy and Education 8, no. 2 (Fall 1973): 146-62. Snook introduces the terms "inquiry model" and "discipline model," which I use in this article. However, it does not seem to me that he does justice to the inquiry model as Dewey develops it. Thus, I use the term "inquiry model" in this essay in a narrower and more specific sense to refer to Dewey's paradigm of reflective thinking.

2. John Dewey, How We Think: A Restatement Of The Relation Of Reflective Thinking To The Educative Process (Chicago: Henry Regnery Co., 1933), pp. 3-4.

3. Gilbert Ryle, "A Puzzling Element in the Notion of Thinking," in Studies In The Philosophy Of Thought And Action, edited by P. F. Strawson (New York: Oxford University Press, 1968), p. 8.

4. Dewey, p. 9.

5. Dewey, p. 10.

6. Dewey, p. 83.

7. Dewey, p. 84.

8. Dewey, p. 68.

9. Dewey, p. 68.

10. John Dewey, Democracy And Education (New York: The Free Press, 1966 [1916]), p. 49.

11. Dewey, Democracy And Education, p. 48.

12. Dewey, How We Think, p. 107.

13. Dewey, How We Think, p. 14.

14. Ryle, p. 7.

15. Israel Scheffler, "Reflections on Educational Relevance," in The Philosophy of Education, edited by R. S. Peters (New York: Oxford University Press, 1973), p. 79.

16. Scheffler, p. 79.

17. Snook, p. 147.

18. Snook, p. 155.

19. See John Passmore's fine article "On Teaching to Be Critical," in The Concept of Education, edited by R. S. Peters (London: Routledge and Kegan Paul, 1967), pp. 192-209. Passmore's article stimulated many of the thoughts in the last part of this essay.

20. Passmore, p. 197.

21. Robert C. North, "Alternate Futures for Society: Certain Variables and Parameters" (Paper given at 47th annual meeting of the American Orthopsychiatric Association San Francisco, March 24, 1970), p. 1. ED 058 107. I am indebted to the people at ERIC for enabling me to find this and many other stimulating articles on education and the future in their microfiche library, at One Dupont Circle, Washington, D.C.

22. Michael Oakeshott, "Learning and Teaching," in The Concept Of Education, p. 164.

23. Dewey, Democracy and Education, p. 158.

24. G. E. Moore, Principia Ethica (Cambridge, England: University Press, 1968 [1903]), p. vii.

25. Passmore, p. 207.

26. Passmore, p. 206.

FUTURIZING, KNOWLEDGE UTILIZATION, AND TRAINING

by

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By "futurizing," we mean the processes by which one makes predictions of alternative or optional futures. Which particular crystal ball one chooses to use, and the skill and perceptiveness with which one gazes into the mist, are the subjects of this paper. Our focus is on education in general and, more particularly, on the training of teachers and others in the process of futurizing.

The full paradigm of the process of futurizing in teacher education treats at least three dimensions: the futurizers (where decision making is located), the knowledge functions related to futurizing, and the training required for futurizing. To create a semblance of orderliness, we present an illustration of this paradigm in Figure 1.

The use of the paradigm for this paper is to locate the context of what will be a selective discussion and to give due recognition to the context and the required analysis of other cells or cubes in their interactive effects upon the total system. We do not apologize for the complexity shown here, which only partially reflects the multidimensional and interactive properties of futurizing.* We now turn our attention to a discussion of each of these three dimensions, starting with the various persons or groups who could or will be futurizing in decisions about teacher education, as seen in our crystal ball.

Decision making in teacher education through futurizing will be located in many different places in education. The most obvious locations will be the various decision and policy groups in teacher training institutions. These are the present familiar spots: individual faculty members teaching courses, the departmental and sector groups, the policy committees of the institution, and the formal and informal organizations within the college or university system. However, we predict that their role in decision making about teacher preparation will diminish.

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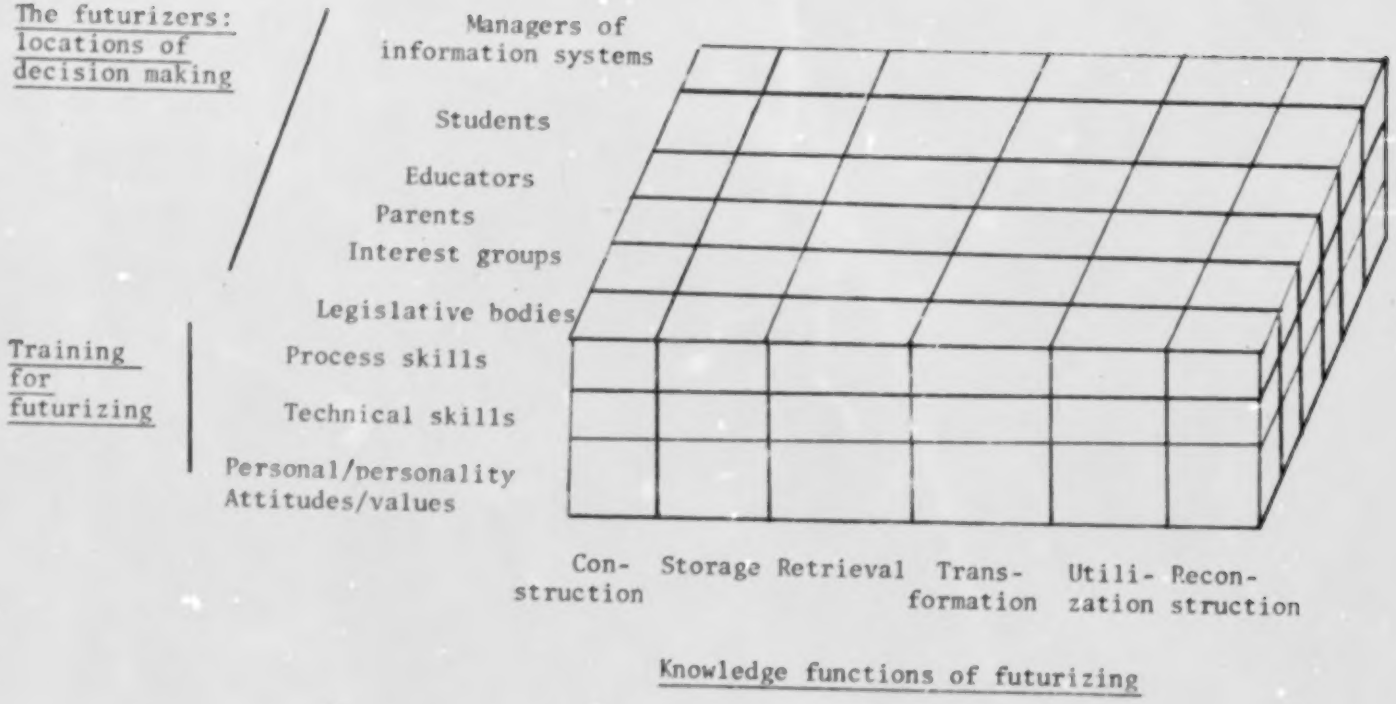
*Figure 1 indicates that reconstructed knowledge itself becomes stored, retrieved, transformed, utilized, and reconstructed, thus adding to the quantity and character of our knowledge base. We also intend the reconstruction loop to apply to the character of these knowledge functions themselves. The techniques and processes for futurizing can be confidently asserted to be different in the future and will be reconstructed also. For our sanity and brevity, we will merely acknowledge this fact about the future of futurizing in this article and confine ourselves to present futurizing.

FIGURE 1

THREE DIMENSIONAL PARADIGM FOR "FUTURIZING" IN EDUCATION



Not to be overlooked in their larger and more adversary roles than heretofore will be the various statutory and legislative bodies who make decisions about certification, licensing, and training. These groups, besieged by pressures from community political groups, parents, and taxpayers, will mandate aspects of teacher competency and performance standards and lessen requirements of teacher education. At times this will be done capriciously, at other times with thoughtful reasoning, and upon occasion with sound educationally grounded opinions. The apparently capricious cases will prevail more frequently than the reasoned or professionally sound judgments. Under the battle slogan of "education is too important to be left to the professional educators," the lay groups, and frequently, the politically motivated and/or idealogical, both left and right, will swing lustily with suspicion, irritation, and at time with vindicativeness at teacher education requirements. The consultants providing advice and counsel will not prevail nor necessarily see matters in the same way as teacher preparation institutions.

Teachers' organizations, especially powerful unions, in advocating their self-interests, will adopt an advocacy stance of the present group's "concerns" in defining the preparation of the incoming members of the profession. Furthermore, bargaining agents, professionals in negotiations within a full-time bureaucracy, will use the issues of teacher preparation as a negotiating and bargaining token in their bag of negotiating coins, to be traded and dealt in exchange for other coins or privileges.

Local districts and local education agencies will set their own requirements and indeed in many places will create their own institutions and programs for teacher preparation. As alternative schools within the public education proliferate, school districts or collaboratives of them will see no alternative but to prepare their own teachers for their own unique and highly individualized, thematic, or community needs-based schools, since no central place of teacher preparation can possibly hope to prepare teachers for such diverse or unique programs.

Incoming applicants will receive some or most of their training and preparation in the jobs and roles they have in the military, in the churches, and in business and industrial forms as the supply of teachers increasingly comes from those older and experienced people who will be switching their careers into teaching, sometimes for a short period, and sometimes permanently. The education departments of the personnel divisions of these organizations with adult education approaches will crystallize and metamorphize into formal training institutions for teacher preparation. Adult education's philosophy of learner responsibility will supplant the pedagogical discipline.

Specialist professional organizations will consolidate their specialist name brands so that certification of many of the "teachers" will be by function names, such as counseling teacher, programmed instruction teacher, open classroom teacher, and field experience teacher, not only at the

advanced grades (if we still expect to have grades), but at the elementary and, indeed, the preschool grades. Specializations will start to band together into associations, and associations will become standard setters and will dictate the minimal requirements for teacher preparation for their brand label.

Thus, we expect to find the arena of decisions and decision making about teacher preparation diffuse in location and turbulent in substance. Many places in society will have responsibility for teacher preparation and will make diverse decisions about the kind of preparation needed. There will be rapid shifting of substance in short time intervals as new decisions about teacher preparation are made. Decisions based on economics, politics, the subcommunity, parental preferences, professional educators, the law and courts will be all separate, autonomous, and uncoordinated. At times they will be funneled into some central body or bodies for controlling policy decisions about teacher preparation. The centralizing tendencies will be at constant bay from the onslaught of these separatist forces. The separatist forces will gain legitimacy. Uniformity of minimal standards will not be an accepted value.

For some this prospect is bleak; for others the future state of decision loci that we project will be but a fulfillment and the consequences of what they are advocating now in pluralistic education. For those now in the present control of decisions over teacher education, the loss of this control may be disturbing and threatening. In any event, our presentation of the future as probably turbulent and surely different from the present will illustrate the theme of futurizing; all constants become variables.

Futurizing and its place forces us to construct an image of the future in order to look at *where* the decisions will be made, *how* the decisions will be made as well as at *what* the decisions will be and how to use the concepts of futurizing in these decisions. This portrait of where the decisions will be made is based upon one approach of futurizing. In constructing this image of the future, we have employed the technique of extrapolating from present tendencies (of course, selectively, which at once exposes one of the weaknesses of this approach in futurizing). Each reader can supply data from his present scene to validate the scenarios or deny them. An obvious gap is the interactive and counterreactive forces emerging from the clashes and resulting dynamics of separate scenarios.

Another approach to the future to locate where and how decisions will be made about teacher preparation would be to assert the "necessity" for the total system of U.S. education to convulse and step-jump into another level of integration of the places where decision making will be located. By definition, there emerges a state that is unanticipatable in the concrete, but anticipatable as a known unknown. This future state of locus and decision making will have some sort of integrative nature based on the qualitatively new parameters of the educational system, the new funding procedures of revenue sharing and court decisions on equalization, and the inherent need to assert some intelligent control over the teacher preparation for interchangeability in local systems across districts and states.

Still another futurizing approach would be to construct a "utopian view" of the future, based on some normative assertions. One might be that of the professional educator in control over decisions, with all other forces considered as input with data to be taken into account and with the validation and enforcement through some political body such as the 50 states of the federal government. Such a view of the future might well be a nostalgic reconstruction of the long-lost past, a past romanticized and idyllized where the professional educators were thought to be in control of teacher preparation. Other utopian views can emerge from the normative stands of the philosophers of education or the policy pronouncements of the educational psychologists.

Professionalized oracles, whether delphic, Conantic, or pronunced by the wise and powerful men of the tribe, can be employed to both define an image of the future and help make it come true by proclaiming it. Such self-fulfilling prophesies depend upon the credibility of the source or the credulity of the audience.

The approach to the future we will follow in the remaining part of the paper is that of moving with the problem-solving processes and methodological procedures that can tranform the present into an emergent future.

Already, we note, the application of futurizing to decision making has raised serious questions about the places where decision making on teacher education and preparation will occur and how decisions will be reached. The decentralization of loci, the seemingly turbulent processes of concatenations and clamorous voices, the stop-and-go velocities of alterations of former decisions, and the feelings of loss of control will, we expect, be counterbalanced by the appeals to reason, data, and knowledge (hopefully, researched knowledge constructed to these policy ends), the use of validated and selected data for partisan support, and the use of personal knowledge and experiences will be provided by the specialist groups or roles. These specialist roles will transform the stored information to enter into the policy purposes and the policy makers. The process of the utilization of knowledge for these purposes involves the following functions: the construction of knowledge, storage in a variety of forms, the means and procedures for retrieving the knowledge, and the means and procedures for transforming the retrieved information into the framework of meaning for the users' purposes. It is hoped that two of the outcomes of this process would be (a) a reconstruction of knowledge which is stored, transformed, and used and (b) a reconstruction of the process itself.

These "knowledge functions," as shown in Figure 1, are going to become increasingly complex as the loci of decision making spread and become more diffuse. For example, in storing knowledge the designers and managers of information systems will have to create multiple language and indexing systems that will accommodate a staggering range and variety of users. As language and indexing systems become more complex, most users will need some intermediaries to translate those complexities from them. And, the users themselves will require training and practice in the retrieval of knowledge useful to futurizing.

In education, the large-scale system for educational research as contained in the ERIC system provides a massive resource for the field. The technical aspects of storage (collecting, coding, abstracting, and storing in forms such as short abstracts and full reports) and the processes of retrieving (the reverse sequence of storage in many senses) are not in our competence to comment upon. We can note this: These systems of storage and retrieval, from the point of view of futurizing, must contain within themselves the capabilities for adapting to new circumstances not only by growing in size, but by growing with the shifting interests and concerns of constructors/users. If we truly apply conceptions of futurizing, then limited conceptions (e.g., the future is a size problem--it is more of the present) are unacceptable. Items to be stored and retrieved must be complemented by futuristic notions of various imaginings that are qualitatively different in conception of purpose and technology for constructing, collecting, storing, retrieving, and utilizing knowledge. We do not preclude a technological solution in hardware and software, but we look forward to imaginings and conceptions of transforming the storage and retrieval system's own processes, procedures, and technology.

The central question for future discussion about decision making and decision makers is the issue of their purposes and the place of data (knowledge) for these purposes. It is here that we need to introduce some concepts of transformation. By transformation, we mean the processes of making meaning for a given purpose and inquiry. Can the data relate to a question in the user's mind as he approaches his problem? And, more intriguingly, can the retrieved information help him to reformulate his question and inquiry into a more significant form than his original form of the question or, indeed, make him ask a different question entirely? Even more central are the transformation processes needed for futurizing. For example, futurizing as exploration requires a time series of data for trend analysis. Are data coded and retrievable by time points with comparable categories? Can retrieval and transformation "force" concerns of futurizing to the attention of the user of knowledge? All these transformation processes so far have taken the form of an institutional activity. The total ERIC system of the National Institute of Education has established clearinghouses to perform some of the significant transformation processes. This is done by commissioning reports and collecting information processed to a purpose.

For example, in preparing this paper, the ERIC Clearinghouse on Teacher Education retrieved ERIC documents with the words "computers" and "futurism." The search produced 308 items, approximately 95% of which were the research reports on the use of computer-aided instructional programs. The bulk of the material was about the use of storage and retrieval functions of knowledge contained in studies of computers and their utilization in the instructional and learning process. Only about 5% of the items were helpful in understanding *how* to train teachers in the use of storage and retrieval systems. One gathers from the information in the printout that the role and skill of the student, the teacher, and the educator/teacher is not stored with, at least not retrieved by, the terms "computers" and "futurism." Experts in technology, it would seem, have interposed themselves to "help" the student, teacher, and educator do their storing and retrieving. But,

from the point of view of futurists, if we leave to the technological experts work on the processes of storage and retrieval and depend upon them to give us the outcomes, then we may well have lost the essence of the needed adjustments and learning to the future. We can have others retrieve and store, and then we can utilize (however hard and limited this may be); however, without learning how to retrieve, without understanding how retrieval may change, and without learning how flexible we can be about yet-to-be invented and already embodied forms and processes of retrieving, we have not been true to the spirit of applying futurizing to teacher education and to the teaching and learning of students.

Confronting the stark fact of the boundless and exponential increase in knowledge, we either fly despairingly by the seats of our pants or pant for the seats of knowledge! Between these abysses, we can and must construct other ways in which we must make the commitment to utilization of these direct first-order and second-order knowledges. Both involve knowing about, how to go about, and hold to anticipated new ways in the construction, storage, retrieval, transformation, utilization, and reconstruction of validated knowledge.

Each of the persons and groups shown in Figure 1 has unique roles, responsibilities, and requisite skills in the total system of typical idea flow, from knowledge construction to knowledge utilization and reconstruction. The diverse decision makers involved in teacher education will use information to guide and rationalize their conduct. It is hoped that they will examine the consequences of their potential actions, open up new conceptions of desirable future states, or anticipate the future "realistically" by the use of futurizing approaches, primarily that of extrapolation from present existing data about trends.

Among these diverse groups are the college teachers. What behaviors do they need to be effective for the teachers they train who have at least a 20-year span of teaching students, who in turn have at least 50 to 70 years of life ahead of them? How can a college teacher prepare himself or herself to imagine the future of 70 years away? Posing the question in this form points to the absurdity of serious attention to a concrete future that appears very much the same as the present. The obvious, and increasingly heard, answer is that we must be teaching "process" as well as substance. We do or should be teaching not only an innovation, however laudable it may be, but also the process of innovating. We do or should be teaching not only about change, but about changing. We should be teaching not only about the future, but also about futurizing.

The formulation of construction, storage, retrieval, transformation, utilization, and reconstruction of knowledge can be abstracted into a more general process. We cheerfully admit that this model is conceptualized around the processes of digital computer logic and design. Other models of thinking and memory and utilization of knowledge are available, though none of them have been implemented for societal use as extensively as this model. With the concern for utilization placed

more prominently, the model of the human person who can engage the full range of human qualities into the process is the central pivot of the whole process. As a consultant he can transcend the mechanistic phase and its process of transformation of stored knowledge to engage the human processes of utilization of knowledge. As an applied behavioral scientist and, indeed, as an applied psychologist (from Dewey's original conception of education as applied psychology and the teacher/educator as an applied psychologist), he can be effective in helping teachers and students engage in the full range of processes necessary for effective utilization.

In such a model, the present large-scale systems such as ERIC become one tool for utilization and become simultaneously one model among many for a teacher and for a student. The computer model for analysis of a person's mode of constructing, storing, retrieving, transforming, utilizing, and reconstructing knowledge can be a useful paradigm for shaping a teacher's or a student's utilization processes, especially for helping him to see and examine his own processes in contrast to the computer model. However, if we teach this model, its processes, its own adaptations, and its self-transformations as a sole model for humans, we have created humans in imitation of technology.

This tension between a mechanistic model and the human processes of the utilization of knowledge pose, in our view, a key to identifying a range of training needs with regard to futurizing. In preparing this article, we were sent (as mentioned before) 308 items from the ERIC system that were retrieved with the terms "computers" and "futurism." Nearly all of these items (95%) were only peripherally related to our topic, and one might conclude from this that the ERIC indexing system failed in this instance. There were, however, several unexpected benefits that grew on us as we thought about them.

First, we gained some confidence in the revelation that we were exploring relatively uncharted waters, and we felt a sense of challenge that can come from the absence of a conventional wisdom. Second, this void allowed us to interject our own selfhood and personality factors into what had previously been an assignment (which we accepted) defined by others. This put us into the core of control of the transformation and utilization of the knowledge that had been retrieved for us and added to our enthusiasm for the task.

Third, one of the articles in particular may have been worth the whole package in that it reminded us that human knowledge utilization is limited and that a closed-loop or cyclical mode is necessary. This means that we cannot exhaust the retrieval, transformation, utilization, and reconstruction possibilities of an information system but must, according to our individual capacities, progress through the cycle incompletely. Thus, we have taken this article as far as our own capacities have allowed, given the constraints and resources that were peculiar to this task. We, or others, may complete other cycles in the future, leading in net to a somewhat systematic accretion of knowledge, rather than "producing the answer."

Fourth, another of the 308 ERIC items opened up for us a new avenue of exploration that coincides with our work and interest in evaluation research in education. This item relates survey feedback and problem-solving techniques with collaborative decision-making structures and triggered in us ideas that we can apply to our work in making program evaluation studies more useful to organizational development.

We have found, for example, that it is possible and useful to our clients to place knowledge utilization for organizational development in the context of evaluation research. Thus, when we evaluate Title I, Title III, or other types of programs, we help the client to futurize regarding project outcomes, which put the client--not the evaluators--in the locus of control. We have found that this enhances the client's ability and willingness to utilize our evaluation findings in a cyclical, inquiry mode during the project, thus avoiding some of the limitations of simply doing a summative (end-of-project) evaluation.

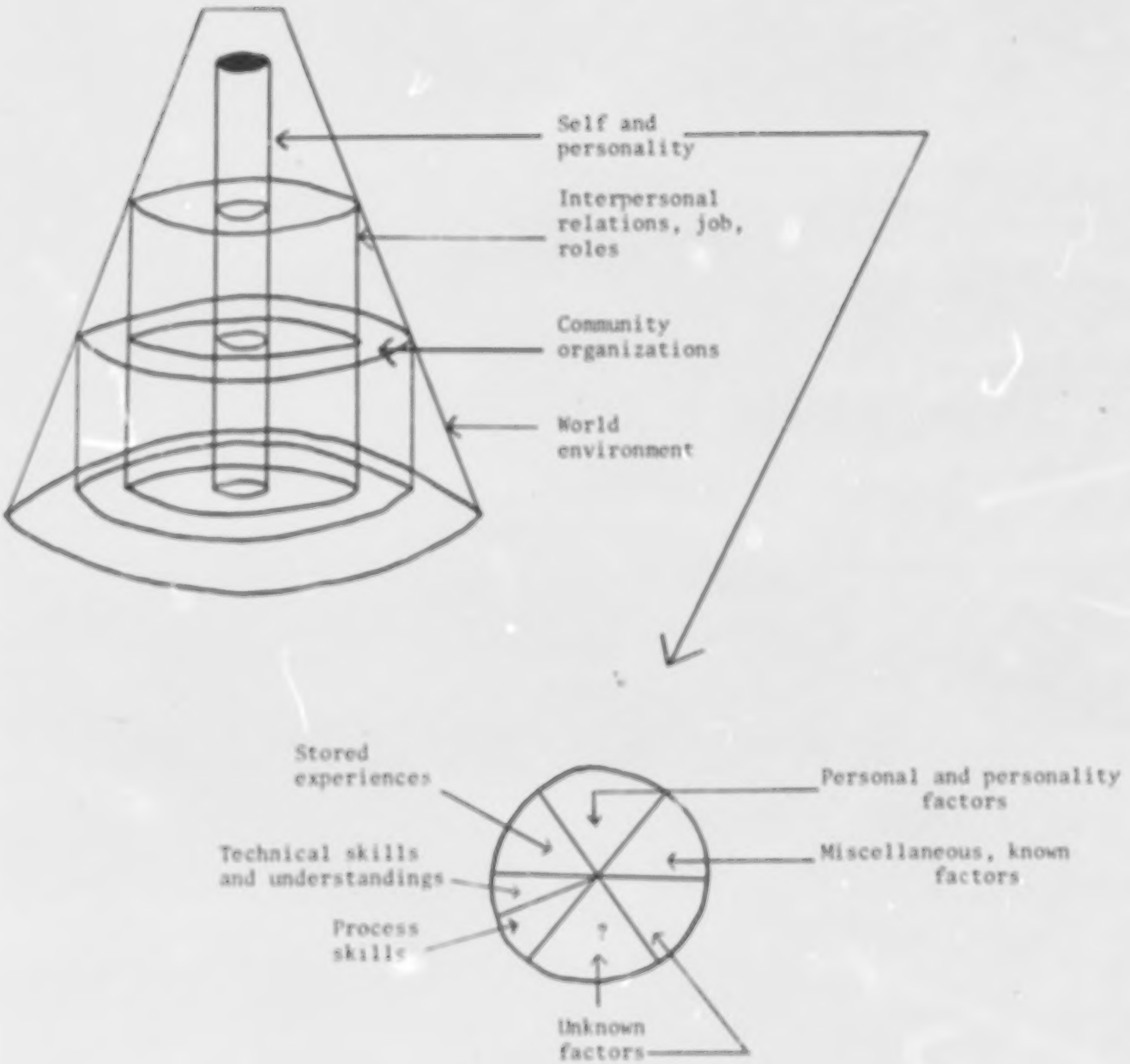
In Figure 2, we have attempted to illustrate a conceptualization of this experience to show the place of selfhood in knowledge utilization from which we will derive certain training needs regarding the process of futurizing. The illustration is intended to underscore the fact that the human is in the social settings of jobs, other persons, roles, groups, organizations, and an environment. The person is represented by a central vertical column. At the heart of the column is selfhood and personality factors. The outer sectors of the central column are composed of quadrants or sectors of the individual. These sectors are stored experiences, personal knowledge--some of which are refined from personal experiences and some of which are acquired information--and skills in functions such as construction, storage, retrieval, transformation, utilization, and reconstruction. A final sector is of miscellaneous factors, which dictate action separate from the other sectors outlined.

The central core of self and personality is obviously a huge and varied core. This central core and the central column are placed in settings of interpersonal relations and roles, in jobs and small groups, in community and the world environment. In other than the top "slice," there are various extensions of self-skills and of aids beyond these skills that provide assistance in extending the person's input. At some of the lower, that is, wider levels of the cake, there are reference books, newspapers and their files, books and dictionaries, ERIC and other information systems. Each of the layers rotate in erratic fashion, presenting a kaleidoscope of the scene. With electronic devices of information presentation and retrieval, the person has an infinite capacity to reach and to be reached by ever-widening circles of information. His central column and indeed his central core may well be affected in functioning.

The central column is all of one piece, subjected to torques and twistings, but with a tendency to retain its shape when seriously twisted. The whole column is also rotating so that different sectors are presented in saliency at any given time in any given setting.

FIGURE 2

THE PLACE OF SELFHOOD IN KNOWLEDGE UTILIZATION



In this model, we have widened the conception from the computer model in regard to the definition of validated knowledge. The sector of personal validated knowledge, coming from both direct experiences and learned information, has its own system of construction, storage, retrieval, transformation, utilization, and reconstruction. Here, too, we have skills and modes of making use of this personal knowledge. The yet-undefined limits of this sector means that there is a huge reservoir yet untapped. Specialists in this human capacity remind us that the capacity of this system is much larger than we have supposed. Even computer experts agree that no mechanical system yet invented rivals this sector in its functioning.

The range and boundaries of this human capacity are certainly far beyond any individual's attainment, so we must ask what skills and capacities can be increased by training that will stretch our ability to futurize. Going back to our own experience in using the ERIC system to write this paper, we have identified three areas of training for which we feel curricula can and ought to be developed.

First, there is a set of personal and personality factors involved in human utilization/information system interactions. Our attitudes and values towards technology and computerization affect our knowledge utilization behaviors and can be positively altered through familiarity and proven worth and utility. If we feel control over the system, we are more likely to view and use it as a tool, which enhances rather than threatens our challenge and satisfaction. Within this sector lies also our capacity to deal with ambiguity and our tolerance of futurizing with a low percentage of accuracy. Training and experience can improve these capacities also.

Second, there is a range of technical skills and understandings that affect our knowledge utilization capacities and that also can be taught. We must learn and apply new languages of knowledge, construction, storage, retrieval, transformation, utilization, and reconstruction. We must become more adept and adaptable in developing and using filing and indexing schemes. We can learn more systematic approaches to questioning, branching, and looping in our inquiries, and we can learn to employ feedback in our decision making better.

Third, and to us the most important regarding our ability to futurize in teacher education and other areas, is a set of process skills regarding knowledge utilization. To repeat and conclude with an earlier theme, teacher education must focus on innovating in addition to innovations, changing in addition to change, processing as well as process, constructing and construction of knowledge, storing and storage, transforming and transformation, utilizing and utilization, reconstructing and reconstruction, futurizing and the future--and futurizing about futurizing, ad infinitum.

THE CULTURAL ARTS IN TEACHER EDUCATION

by
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Teacher education is involved in short-range predictions in designing programs for the next three or four years for the prospective teacher. The teacher, in turn, must construct a long-range curriculum to develop in children those abilities that will be of value when their schooling is completed. Among the concerns that teacher education programs will most likely stress will be the creation of knowledge, the arts, and the teaching of values and ethics. The purpose of this paper is to examine each of these areas in as much detail as space permits, analyze issues and relationships, synthesize findings, and make policy and programmatic recommendations for teacher education.

THE CREATION OF KNOWLEDGE

The vitality of a culture now and in the future is in part a function of the creation of new knowledge and its effective utilization. The advancement of civilizations, not only technologically but in governance and the arts, stems largely from the effective development, dissemination, and utilization of knowledge and new ideas. In today's world the economically developed nations also have the largest scientific and technological base and are usually more advanced in the social and behavioral sciences as well. A nation must attain a certain knowledge base and level of highly trained manpower from which to draw before certain developments can occur. Deficiencies in these areas can be observed in the economically underdeveloped nations in science, technology, agriculture, population control, and other areas.

This section will focus on generic aspects of the creation of knowledge. First, we want to know how one goes about creating new knowledge; secondly, how one would teach teachers how to create new knowledge; and finally how children would actually engage in the process of creating new knowledge.

The Forms of Knowledge

Before examining the process by which knowledge is created, it is necessary to clarify the characteristics and types of knowledge. The structure of knowledge in the arts will be discussed in the next major section.

Children enter school with many beliefs acquired from parents and peers; as the child matures, the number and range of beliefs increase markedly. But beliefs differ from knowledge. One may have some evidence to support a particular belief or little or no evidence. It is quite common for adults as well as children to hold beliefs that lack grounds for their support. Beliefs may be based on prejudices, irrational fears, unfulfilled psychological needs, or the folklore of the tribe.

To determine whether a knowledge claim is warranted, one must be able to assess the grounds on which the claim is made. According to Woozley, when one claims that he knows something to be the case rather than merely believes it to be so, he can produce evidence, show that it is sound evidence, and show that the evidence relates to the conclusion.[1] For example, a person could be charged with murder on the basis of finding his fingerprints in the room where a corpse was discovered. But the fingerprints alone would be insufficient for asking a jury to deliver a verdict of guilty. Thus one must not only have evidence and make certain that it pertains to the matter under consideration, but also arrive at the right conclusions whenever applying the evidence.

A somewhat different version of knowing that something is the case is found in Scheffler's three conditions: that one must believe something to be the case, that the person have adequate evidence to support his belief, and that the knowledge claim itself is true.[2] A weaker sense is produced by eliminating the second condition. In the weak sense, one needs only to have true belief; it is not necessary to present supporting evidence.

Knowing, but not believing, is incompatible with being wrong or mistaken, according to Scheffler.[3] But the weak sense of "knowing that" has some difficulties. One may ask how we can know that the proposition or the knowledge claim itself is true without adequate evidence that such is the case. Knowledge claims about the world must be based on some form of evidence consonant with an agreed-upon set of standards developed out of a discipline or field of inquiry. Thus, one would first need to gain the relevant evidence and to make certain that it was sufficient to support truth claims before such claims could be certified as true. It is the case, however, that one may accept the evidence adduced by an authority or not even be aware of or fully grasp what is being offered in evidence because of an inability to evaluate it. Most knowledge, then, is secondhand--and it could scarcely be otherwise in view of the vast amount an adult needs to know in order to cope successfully in a complex society. But in speaking of weak knowledge, we usually refer to the transmission and utilization of knowledge rather than to its creation, since the creator must provide evidence for his new discoveries; otherwise they are not likely to be accepted.

Another objection to Scheffler's knowledge conditions is that it may be possible to bypass the belief condition. Serendipitous scientific discoveries, for instance, have usually not been based on a belief condition but have led the scientist straight from a lack of belief about the matter (and perhaps from no thoughts about the matter) to discoveries. While it is true that the usual procedure in everyday thought would be to test beliefs (even though many beliefs are never tested because of their lack of plausibility), it is still possible to arrive at new knowledge without beginning with beliefs to be tested. Thus it would appear that Woozley's criteria for "knowing that" are less questionable than those of Scheffler.

So far we have discussed knowing as propositional knowledge or "knowing that." Ryle also speaks of "knowing how," which he warns should not be reduced to "knowing that."[4] We know how to do something whenever we can perform

certain acts successfully. In the case of some activities there may be no formal rules to guide performance. Moreover, in contrast to "knowing that," it is not always possible to explain to others how one was able to perform the act successfully. As one gains proficiency in performing an act, it becomes less likely that he will be self-conscious or need to formulate rules prior to the act itself. Performance is calibrated in terms of efficiency levels, ranging from very limited to expert ability. A performance is also usually mastered over a period of time after repeated practice, feedback, and correction of mistakes. In contrast, one usually learns a certain truth at a particular time; either he knows or he does not know that something is the case.

Thus our concern in the creation of knowledge is not limited to propositional knowledge but extends to "knowing how," which would include the development of new methods of inquiry and discovery in the sciences and the arts. "Knowing how" could be as disparate as designing ways to put a man on the moon or testing relativity theory to ascertain whether space is curved to developing the twelve-tone technique of musical composition.

Other forms of knowing may not fit conveniently within the two forms discussed above, however. The object of inquiry in the sciences and social sciences is to develop laws and explanatory models under which a wide range of phenomena can be ordered and explained. Once a science has advanced sufficiently, prediction also becomes an objective. Thus scientists want to know *why* something is the case and to be able to advance a law or series of laws to explain the events under question. We can therefore add "knowing why" to "knowing that" and "knowing how."

But there also is another important type of knowing that we will call "personal knowledge." The individual, according to Phenix, has direct insight into others as organic wholes existing in relationships.[5] In contrast to the other forms of knowledge discussed, this form of knowing requires a direct meeting with another rather than detachment. It consists of a subject-to-subject rather than a subject-to-object relationship.

Personal knowledge can probably best be understood by contrasting it with scientific knowledge. The objective of science is to discover the laws of nature rather than to study nature. Science is able to explain when events are examples of general laws. To uncover laws it is necessary to develop an appropriate methodology for employing measurements and theory. Science is not interested in the single object or the individual except as instances of some larger uniformities and regularities. In contrast, personal knowledge is idiographically holistic: it seeks to reveal a particular pattern in a unique individual. Thus, rather than focusing on the distribution and incidence of a datum within a population, it seeks to understand the individual as a whole and as one who can enter into active relations with others. Personal knowledge is based on studying the person from the inside by gaining sympathy with another's thoughts through a process of imagination. It is also a form of *Verstehen:* it seeks understanding of the thoughts, value judgments, and purposes that motivate action.[6]

Personal knowledge is of great importance in our discussion as to how teachers and students can be taught to create knowledge. In speaking of "new" knowledge, it is evident that not everyone will become research scientists and add to the sum total of the knowledge of a culture. Neither will most people become creative composers and playwrights. But each person can develop new personal knowledge, some of which may vitally affect the lives of himself and others. A considerable number of people may also become creators in the realm of "knowing how," especially in areas of technology and services. But the number of creators in the other two forms of knowing is more limited. This does not mean, though, that the individual does not in some way perform a creative act in the process of comprehending and using new knowledge. Creativity, although it has traditionally been associated with the act of discovery, should also include understanding and application, even though the configurations of creativity may be of a somewhat different order.

KNOWLEDGE, CREATIVITY, AND THE CULTURE

Civilization rests upon past discoveries of knowledge and inventions whose applications make today's way of life possible. Prehistoric man discovered fire and invented tools fashioned of wood, bone, and stone. Some six to eight thousand years ago copper began to be substituted for stone. By 3,000 B.C. southwestern Asiatics originated iron working. Language, which likely developed from a subhuman stage of sounds emitted during emotional states such as fear, rage, and sexual excitement, was probably the single most important invention for ensuring social cohesiveness and the transmission of culture.

The creation of knowledge can be described by terms such as "invention" and "discovery." Although the meaning of the term "invention" has been narrowed in our time to refer to creating new machines and mechanical devices, here we shall speak of it in its broader meaning which includes, as well, the invention of ideas. Each new aspect of a culture, from its new tools to its new laws, constitutes invention. But because invention builds from the past, any invention is not wholly new but results from a novel combination of existing ideas or machines. Invention is also a deliberate application to a specific situation, whereas discovery involves a greater element of chance. The deliberate scientific experimentation leading to certain inventions many times may have involved an element of discovery.

Thus, in speaking of the creation of new knowledge, we will not attempt to sort out whether the knowledge is totally new or a novel combination of preexisting forms. Most of the new knowledge today will involve a breakthrough once the knowledge base has grown sufficiently to offer a wide range of fruitful clues that may lead to a new discovery. Despite Leonardo's genius, he was not able to develop a flying machine, and civilization had to wait for many centuries before a sufficiently large knowledge base was available. Once a certain level of knowledge is reached, it is likely that more than one scientist or inventor will develop a new idea simultaneously (as was the case with Darwin and Watson and many scientists since that time). Or when the inherited forms prove inadequate, creative minds must develop new paradigms out of which they can work in the future.

In the nonmaterial culture a number of precedents can usually be cited for a new philosophy, ideology, or religious sect, even though the forms they take may be novel. During the sixties, analysts attempted to delineate antecedents for the civil rights movement and the sudden emergence of the New Left. Some historians have shown what elements Christianity borrowed from Judaism, Stoicism, Gnosticism, Zoroasterianism, and Mythracism; others have indicated the extent to which Marx and Engels drew upon the Enlightenment, the social Utopians, Hegel, and certain emergent economic ideas of the time.

The previous remarks should not incline us to limit the process of creating new knowledge to scientists and inventors. Recalling that knowledge may take any of four forms--knowing that, knowing why, knowing how, and personal knowledge--it is likely that a wide range of people can create new knowledge, especially in the latter two areas, when new knowledge is thought of as invention and discovery based usually on a novel arrangement and combination of existing ideas and artifacts.

The creative process, associated in the public's mind with genius, has frequently been shrouded in suspense and mystery, leading to a belief in a division between the creators and the masses of people who carry out the world's work and sustain the everyday workings of society, but who contribute no novel ideas that would lead to its advancement. This view needs correction, for it is in the full utilization of a nation's talent that advancement is ensured. Increasing evidence exists (as will be indicated below) that a larger percentage of the population can contribute to the store of knowledge.

The Creative Process

The creation of new knowledge is not the familiar problem-solving process in which the problem is presented in an undifferentiated form and the problem solver must clarify and define the nature of the problem and search for hypotheses to be tested; rather, in the creation of knowledge the problem itself is not given but must be found or even invented as a possibility for exploration. If the problem is given, diverse and unique solutions are proposed rather than the single "right" answer. But the creative process is not limited to working with problems; it may involve a novel way of combining disparate things or a new way of structuring a situation that was made possible by the creator temporarily freeing himself from the prevailing conceptual system.

The four stages of creative thought outlined by Wallas[7] fits fairly well the autobiographical reports of creative persons in diverse fields.[8] These stages are preparation, incubation, illumination, and verification. In the first stage knowledge that is necessary in the creative act is acquired. But in the second stage no apparent progress is made, and the individual busies himself with other activities. At some point in this gestating period the new idea occurs; there is a sudden illumination, even though the individual may be engaged in some unrelated or trivial activity at the time. Finally, the new idea is tested, and the idea reduced to exact form.

Some researchers have objected that not all creative thinkers go through the stages in this order, that some may skip a stage, and that the stages are

not so clearly defined in practice. Other stages may be needed: following incubation, there may need to be a stage of elaboration in which the new ideas are articulated and sorted out prior to their being tested. Nevertheless, it is a reasonably useful guide.

Researchers have not found a high correlation between I.Q. test scores and creativity measures.[9] There is general agreement that above a certain ability level--no more than 120 I.Q.--creativity no longer depends upon the addition of I.Q. points and divergent and convergent thinking become independent of one another.

Guilford's formulation of the structure of human intellect helps to explain creative abilities.[10] He divides intellectual abilities into a small group of memory abilities and a larger group of thinking abilities. The thinking abilities are further divided into cognitive, productive, and evaluative abilities. Productive abilities consist of convergent and divergent thinking. Convergent thinking proceeds to one right answer to a problem; whereas, divergent thinking proceeds in diverse directions as the individual explores a variety of aspects of a problem and generates a diversity of solutions where more then one is appropriate or desirable. Guilford indicates that all of the divergent thinking abilities are involved in creative thinking, but creative thinking also includes redefinition abilities (a form of convergent thinking) and sensitivity to problems (one of the evaluative thinking abilities). Nevertheless, divergent thinking constitutes a major part of creative thinking.[11]

One of the most critical questions in the study of creativity involves the criterion problem--how to identify the creative person and the creative level achieved. Criteria used include number of citations in biographies of famous people, scores on creativity tests, judgments of professional peers, products created, and the pursuit of any activity thought to be creative. While no investigator has used all these criteria in a study, multiple criteria have been employed to uncover the characteristics of creative persons in various fields.

Studies of creative scientists, architects, writers, and mathematicians have compared their characteristics with less creative workers in each field.[12] Despite differences among the professional groups, some common traits could be observed: creative people are highly independent, dominant and unconventional, flexible and open to experience; show single-minded devotion to their work; prefer the complex and asymmetrical to the simple and symmetrical; and exhibit feminine interests, playfulness, and humor. Other characteristics include a greater openness to one's own images and impulses, orientation toward intuitive in-depth perception rather than sensory perception, and a preference for aesthetic and theoretical values to those of other types.

Preparing Teachers To Create New Knowledge

Certain basic freedoms, both in education and the larger society, are essential if teachers are to enjoy the conditions that are virtually indispensable for the creation of knowledge. These conditions include academic

freedom and basic freedoms in the larger society such as freedom of the press, speech, and assembly. That some have created under the yoke of tyranny is more a testament to their exemplary courage and fortitude than a counterexample to the need for the basic freedoms.

By "academic freedom" is meant the freedom to pursue truth and to seek knowledge in any area of human experience. It is the liberty needed to develop and communicate knowledge in the academic community without political, ecclesiastical, or other forms of interference. It involves a search for truth, both in teaching and research, not only on "safe" topics but those likely to stir widespread debate. The application of the imagination to the future requires an environment where it is permissible to err.

Since the late nineteenth century, beginning with the development of U.S. research universities, academic freedom has spread in higher education; but it did not take root very well in the public schools. The reasons for this condition are many. During the nineteenth century curricular patterns were less questioned; teacher education was limited; it was believed that academic freedom applied only to research scholars; it was thought that less mature students should not be exposed to controversial issues; and, finally, it was feared that public support would be eroded if controversial issues were introduced in the classroom.

Choices of areas to investigate not only are influenced by the support of academic freedom and the general climate of freedom in the larger society, but are partly a function of what society values. What [illegible]ture thinks its future will be will have an enormous impact on its fu[illegible] Every society establishes priorities and differential rewards; this is [illegible]ially evident in totalitarian states where the penalties for deviatic[illegible] are publicly meted out. But it is also the case that democratic states tend [illegible] reward certain areas of inquiry and to slight or ignore others. In the Soviet Union, for instance, psychoanalysis is outlawed; Marxism reigns supreme in philosophy and the social sciences; scientists are given freedom in their inquiries, while the arts, from time to time, come under state censorship. On the other hand, the U.S. has offered its greatest material rewards to the successful, capitalistic entrepreneur and those specialists in finance and technology who could provide vital support services. Although the arts are not censored, except periodically at the local level, they have generally failed to receive adequate support. Moreover, although there are signs that the condition of the arts may improve in the near future, it is still the case that teachers of the arts may face forms of discouragement and lack of reward uncharacteristic of other fields.

To look once again at the creation of new knowledge: the stage of preparation involves acquiring knowledge necessary in the creative act. But the background knowledge needed for a specific creative episode rests soundly on the forms of knowledge and modes of inquiry of a discipline. One does not create new knowledge without a command of the field in which one is working. On the one hand, the teacher needs a thorough grounding in the field and demonstrated skill in appropriate inquiry patterns; yet, on the other, he should not become so routinized and fixated in thought processes that alter-

native patterns of inquiry and new approaches to the field fail to be entertained. Unfortunately, many professional programs, whether for engineers, teachers, or lawyers, have yet to find that combination of the transmission of knowledge and acceptable performances ("knowing how") with the needed flexibility and capacity to envision new possibilities.

Many programs, in their overriding emphasis upon grasping the basic knowledge structure, stress convergent thinking at the expense of divergent thinking. While the importance of a sound grasp of a field and orderly patterns of thought should not be minimized, too frequently the creative teacher is hemmed in by fulfilling requirements, keeping to time schedules, following directions, and completing forms and related tasks. Bureaucratic requirements in programs and classes inhibit creativity; and while order and routine are needed for certain day-to-day matters, they inhibit creative responses when extended into situations that are not based upon predetermined rules. Program regulations that encourage dependency and discourage original responses should be avoided, and only those rules and regulations that provide conditions for the progressive development of creative capacities should be maintained.

One type of regulation that may inhibit creativity is the academic calendar and the host of programmatic and instructional constraints that issue from it. Recalling that in the act of creation the incubation stage follows preparation, we suggest that creativity may not follow the academic calendar and its constraints. Two examples of the incubation stage will help to clarify this point. Poincaré tells how he struggled for fifteen days over certain mathematical functions, every day trying a great number of combinations, all to no result. Varying his schedule one day, he drank black coffee and was unable to sleep. Ideas "rose in crowds," and he "felt them collide until pairs interlocked." By the next morning he had established the existence of the class of functions and had only to write out the results.[13]

Russell suggests that there is "a period of subconscious incubation" which cannot be hurried; ideas germinate until the solution emerges "with blinding clarity," and all that remains is to write it out. He relates an episode where he was issued an invitation to deliver a series of lectures during the forthcoming year. He concentrated with great intensity on preparing the lecture, but to no avail. He left for vacation "in despair" and after returning home arranged for a stenographer because time was short. Russell reports that when she arrived, "I suddenly saw exactly what I had to say, and proceeded to dictate the whole book without a moment's hesitation."[14]

There is every reason to believe that even less gifted mortals, in undertaking a significant and complex task, may go through a period of incubation. To promote this aspect of the creative process, rigidities in the academic calendar, schedules, course deadlines, and related constraints should be removed or alleviated whenever possible.

Teacher education programs, too, have emphasized convergent thinking at the expense of divergent thinking. (Performance-based teacher education is the latest example.) Although the importance of the former, which frequently has not been handled well insofar as developing sound inquiry and problem-solving

skills, should not be minimized, creative and divergent thinking processes must be accorded greater support so that teachers can become creators of knowledge as well as problem solvers. To prepare students for the future, they may actually have to be taught how to handle problems that do not presently exist.

A number of privately conducted programs for the improvement of creativity are being offered,[15] and evidence exists to show that creativity can be improved. Results of studies in which persons low and high in creativity were given programs to improve creativity showed that both groups registered improved performance, although the "lows" generally remained in the same relation to the "highs."

Teacher education programs can provide the conditions that encourage creative functioning. Moreover, they can help the prospective teacher to gain an understanding of past influences on his present behavior. In addition to emphasizing divergent thinking and deemphasizing time schedules and bureaucratic standards, this type of thinking should be adequately rewarded. It should become an integral part of the program from the first year to the last. It would mean also that for most students a deemphasis of grades would alleviate some of the pressures and tensions that inhibit creativity. The fear of failure must be relieved and a classroom atmosphere cultivated that manifests a willingness to give all ideas a sympathetic hearing, no matter how odd and idiosyncratic they may seem. Thus the instructor must establish a feeling of trust, sympathetic concern, and a zest for new ideas. When creative thinking is discouraged or even punished while other forms of behavior are rewarded, the most creative students will most likely drop out of the program; the less creative will submit, perhaps reluctantly, to the requirements and acclimate themselves to unimaginative routines.

In addition to being provided with a desirable atmosphere, students need to gain an understanding of past influences on their present behavior that inhibit creativity and of those traits that should be further developed because they promote creative thinking. One approach would be to develop a profile of the creative person in the particular field as a type of guideline for characteristics to be cultivated. Sufficient personal detachment is also needed to make a self-assessment and evaluate the accuracy and usefulness of others' perceptions of oneself. To be creative it is also necessary to be open to one's own inner feelings and emotions, no matter how ambiguous, conflicting, or frightful they may seem. Those who habitually repress their inner life as a form of defense mechanism have cut themselves off from a wellspring of creativity. Creative persons, by maintaining this form of openness, would more likely subject themselves to pathological conditions except for the fact that they also exhibit high scores on tests of ego strength, thereby indicating greater ability than other people have to keep psychological stress under control and shape it to their own ends.

The creation of knowledge is both cooperative and independent. Teamwork is the key in many important scientific investigations, whereas solitary projects are more characteristic of the arts (except in the case of the performing arts). Teacher education programs will also employ group and individual

activities in promoting creativity.

Programs to develop creative thinking can possibly be initiated as separate courses, and creativity specialists can show teacher educators how their courses can be reorganized to promote creative as well as convergent thinking. Specialists will first need to analyze present programs to determine how they can be improved. In other cases, experimental programs will be tried and a final assessment will determine whether the experimental program will be dropped or will replace the regular program. Should the latter decision be made, the new program should give far greater priority than the old one to the creation of knowledge.

Educators for the most part recognize that while there are patterns and regularities in human development, each individual will develop at his own rate and in his own direction. Problems arise in practice when programs tend to shape individuals prematurely to a set of predetermined standards deemed to be applicable to all. But since instruction should draw upon and cultivate the student's full humanity, personalized programs should be offered which recognize different goals, interests, and rates of advancement.[17]

The value process underlies the creation of knowledge insofar as one must choose what is worth creating, decide its relative worth in terms of the resources to be expended on the project, and determine how the findings should be used. The process of valuing will be discussed later in greater detail; here it is important to stress that teacher education programs should provide students with a knowledge of values including what their characteristics are and how they operate in the process of critical choice, determine ends, allocate resources, and affect the utilization of new knowledge.

How Children Engage in the Process of Creating New Knowledge

It is unrealistic to expect children to create knowledge in the form of "knowing why" and "knowing that" because they lack the cognitive maturity, knowledge of cultural traditions, and sufficient grounding in an area of inquiry. It would not be misleading to say, however, that children can create knowledge that takes the forms of "knowing how" and personal knowledge.

The child's world becomes increasingly multifarious as he grows older, reduces the immediate supervision of the parents, and expands from the neighborhood to the school and later outward to the community. One aspect of the child's world includes play and games, dreams and fantasies, all of which are independent of adult standards. Here the child is unfettered and can create new knowledge. Children invent their own rules for games as well as learning them from older children. Games present a challenge to devise new ways of doing things that prove satisfying, entertaining, and make sense in the childhood world of thought. School and home tasks also offer opportunities for devising new "knowing how" forms, except that in these life spaces the child is sometimes hemmed in by a welter of rules and standards developed unilaterally by adults to which he is expected to comply. Such conditions may sap initiative and erode confidence in the child's emerging attempts to make decisions. Thus those rules and standards that fall within the child's com-

prehension should be explained and reasons given for their adoption; whenever the child is capable of participating in their formulation, he should be given the opportunity to do so.

The child begins to develop personal knowledge at the time he starts to form a self-concept. This concept will be considerably influenced over the years by parents, peers, teachers, and others. But children whose school experience has been satisfying and fulfilling and has reinforced confidence in their emerging abilities and the power to make independent decisions will be more capable of adjudicating their inner and external life to form a coherent and positive self-concept based upon reliable personal knowledge. A school environment that encourages certain abilities but ignores or discourages others is likely to stultify a range of self that needs expression for healthy development. Although it is true that schools must estab ish priorities in curricula, there should also be sufficient alternatives built into the program that healthy interests can be expressed and explored.

Pressures to c nform to school routine and regulations and the tendency for teachers to seek the one "right" answer rather than an imaginative and original response inhibits creativity. Moreover, peers who label novel responses "silly" or "crazy" exert considerable conformist pressure. Both teachers and peers may have difficulty in evaluating the more creative children, and their unaccepting attitudes may generate in these children a sense of estrangement, which may lead them to repress their natural tendencies and to become afraid to make errors. The teacher may also consider the behavior of the more creative children to be a behavior problem, and the attempt to make the child conform to unnecessarily restrictive regulations can create in the child great tension and the tendency to repress feelings and behavior. The very lack of flexibility in the teacher's own thought and behavior becomes the nemesis of creative children.

Teachers must provide opportunities for creative work. They must encourage the development of general curiosity and give credit for original answers. A classroom climate that fosters exploration and experimentation promotes the development of creative thinking. Other things that can be done are to shift the emphasis from extrinsic to intrinsic rewards, promote the child's self-confidence in his abilities, capitalize on children's interests, and stress the basic skills that are necessary to many forms of creativity. Teachers need to use more positive, less critical evaluation in which attention is given to strong points and what the child can do to improve. Additionally, it is not necessary to evaluate all learning. Much evaluation occurs too quickly or too frequently, thereby stultifying performance. Students should be afforded an opportunity to try out ideas fully and explore their many ramifications before being evaluated. Over-evaluation stifles their independence and initiative; it refuses to allow students to be self-correcting and to find reward in their own efforts and creations apart from the praise and blame of adults and peers. But to reach this stage it may first be necessary to satisfy some of the more pressing needs--bodily needs, safety, belongingness, and love. Without positive self-regard the creative process, with its novelty, strangeness, and ambiguity, is likely to prove frightening; it takes audacity built upon a foundation of psychological health. Some

people, nonetheless, believe that there is a positive correlation between creativity and neurosis, even though neurosis is inimical to creative thinking because it generates problems of fear and guilt that close off preconscious processes.[18] Thus, despite popular beliefs, creative behavior is most likely to be manifested by healthy people in a healthy environment with supportive adults who can serve as desirable models for the young.

THE CREATION OF KNOWLEDGE IN THE ARTS

In this section we want to know how one creates knowledge in the arts; how one would teach teachers how to create new knowledge in the arts; and finally, how children would actually engage in the process of creating new knowledge in the arts.

That the arts are not adequately supported is well known despite lip service given to their importance and the recurrent articulation of the need for appreciation and worthy use of leisure time. Although there is wider participation in the arts than ever before in history, our own society has habitually given primary importance to utilitarian and material concerns.

To speak of art is to speak of the artist in the imaginative employment of materials to bring about a new creation. But when we refer to creativity in the arts, we can apply the term best to a product that has aesthetic or artistic value. "To the degree that a work lacks coherence and lucidity, to the degree that it is not a unified whole, the relation between whose parts are felt by aesthetic intuition as necessary, not fortuitous, connections, to that degree it will fail to be a work of creative art."[19]

The process of artistic creation has been described in various ways. Some would attribute the process to the emotions experienced by the artist, while others may believe the process is guided by the artist's conception of the end product. However, neither approach is adequate to explain the creative process.

The emotion theory suggests that the artist cannot establish a goal and then calculatingly set out to achieve it; rather, the artistic process is generated by specific emotional states. But what is the specific emotion being expressed in the creative process, and does this same emotion prevail until the work of art is completed? For Shakespeare and Sophocles to write a tragedy, what emotion was experienced and sustained throughout the process? Or what single emotion is found in Ravel's concertos or Bruckner's symphonies? Some artists spend years on a single work; therefore surely we cannot posit the same emotion throughout the many separate processes. It should be clear that no single emotion is likely to be the sole cause of a work. In fact, it is likely that whatever emotions may be experienced in the act of creation are brought under the artist's control, just as he does with his materials, rather than acting as the goad or stimulus behind the artist's activity.

The goal-directed theory suggests that the artist, in the act of creation, is always guided by the end product he aspires to create, and therefore the creative process must be considered in terms of a means-ends relationship in

which qualitative problem solving takes place. In other words, the artist tries out different materials and manipulates his medium in various ways to achieve the desired effects. By so doing he is able to make choices and correct those that prove unsuccessful, until he finally arrives at the right combination of choices that enable him to achieve his goal.

This theory, in contrast to the previous one, assumes that the goal must be firmly in mind and that the stimulus for artistic production comes from the goal itself rather than a prior production. Yet the goal theory is too closely analagous to discoveries in technology in which the inventor begins with a definite invention in mind that will solve some problem(s). The artist, by contrast, may not have any end product in mind when commencing his activity. The artist has tasks that he takes up, but it is unlikely that he has a specific set of problems to solve or can envision the precise final form of the artistic work. While in some instances a general form of the finished work may be anticipated by the artist, in other cases the end product comes as a surprise as the artist follows his own inner impulsions. While the artist is purposive insofar as he is aware that he is making headway in a certain direction, he does not necessarily have a specific goal in mind.

Theories that isolate one phenomenon as the prime factor for explaining the creative process are likely to be inadequate. The multiple factors involved in the process would lead us to say that the artist has an urge to express himself, either because of inspiration or some other factor. He does not usually know ahead of time which directions and procedures will be right, because by the very nature of the creative process what is being done is novel. If instead he was following a prearranged plan that he had perfected, he would know precisely what to do but it would not be a creative act. He makes critical judgments throughout the process as to what should be done. To create is to originate rather than act upon prearranged patterns. To say that the activity is creative, it must issue in a work that is valuable, that realizes a certain set of accepted standards applicable to the work. Critical judgments are made at each stage of the creative process in terms of the work's possibilities and the developments that can still be made. The artist senses deficiencies at each critical juncture; these deficiencies generate tensions to overcome the deficiencies and realize the work's possibilities. As the artist moves along he looks to see whether what he has done expresses most felicitously what he had in mind.

The artist ends the creative process either when he has exhausted what he has to say or when he believes that the work is now ready to stand alone. In the former case he may stop and at some later time return to the work in hope of putting on some finishing touches or correcting some defects; but his attempt to do so is all to no avail because his creative ideas for the project are exhausted. This may cause dissatisfaction, prompting the artist to refuse to show or to have the work performed. In other cases he may believe that at some unknown future date he may somehow bring out the full possibilities of the work.

On the other hand, the judgment that the work is now ready to stand alone

is a decision in which the critics and the public will also participate. The standards of criticism are a large subject beyond the scope of this paper; but it should be noted that the critic or some public may claim, in contradiction to the artist, that the work is still incomplete or embodies deficiencies that the artist should have corrected before releasing the work.[20]

Knowledge in the Arts

The structure of knowledge in the arts does not take the form of the sciences; for science attempts to discover laws while the arts are embodied in individual works. Even though the arts are not nomothetic, certain types of knowledge in the arts takes the form of "knowing that." Historical studies provide data about artistic works and classify them according to type, style, or period. Such factual data may enhance appreciation of the work if used judiciously in conjunction with other ingredients (which will be presented later), but taken alone they are of limited value in an aesthetic education. Biographical information is of importance in the arts, whereas it is negligible in the sciences. This information, "knowing that," is combined with interpretations and appraisals of the artist's life, usually analyzed within its cultural milieu. The biographical approach has held an especially prominent place in musical appreciation: it is used to apprise the listener of what pertinent factors led to or influenced the creation of the composition, how the composition relates to other works composed during the particular period, whether the composer enjoyed the patronage of royalty or wealthy benefactors and was therefore offered commissions, and so forth. In addition to "knowing that," there are also statements about techniques and the use of materials, which take the form of "knowing how" statements.

Our main concern, however, is the aesthetic point of view and what the arts convey. The arts, in contrast to the sciences, do not make propositional statements that convey knowledge, although they do express meanings through images and ideas for those who understand the forms of the arts. What is expressed differs among the different arts as well as within a particular art. The enormous wealth of materials is made more manageable by noting similarities and devising classificatory schemes based on periods or movements.

The manner in which the materials are organized expresses meaning. Factors in a painting such as light and shade, color, volume, mass, and plane define the work. Normative standards such as balance, coherence, and symmetry are used for appraisal purposes. The basic characteristics of a musical tone are pitch, duration, intensity, and timbre; the tones are combined in such a manner to produce meter and rhythm, melody, harmony, and polyphony.

What meanings are expressed by the arts? In music, for example, the question is whether meanings are expressed extramusically or only in the composition itself. To make "serious" music more attractive, program notes have referred to extramusical ideas, as in Beethoven's *Pastoral* Symphony or Tchaikovsky's *Romeo and Juliet* Overture--"Fantasy." In some cases the composer was prevailed upon to provide a program for the concert even though the creation of the work was not guided by extramusical ideas or images, but in

other cases programs have been written or embellished beyond the composer's intentions. Programs ask the listener to visualize battles, the lament of lovers, bucolic scenes, storms, and the like. The listener is therefore tempted to concentrate on visualizing the scene in his mind rather than concentrate on what the composer is doing with his musical materials and the fidelity of interpretation offered by the conductor. Music, even when it is explicitly programmatic, is capable of doing no more than supporting the mood and tone of a particular event. A turbulent musical passage could be used equally well for suggesting a mob scene, a storm at sea, or a quarrel between lovers. That music can evoke a full range of emotions is not to be denied; but music itself expresses musical ideas to be found in the composition and not in extramusical events. Finally, since the function of the arts is to refine sensibility, the objective is to move the listener from roughly undifferentiated sensuous emotion to genuine aesthetic appreciation.

Preparing Teachers To Create Knowledge in the Arts

Lowenfeld has developed one of the most useful and imaginative frameworks for describing the development of creativity in the arts.[21] Freeing of human sensitivities, he believes, is basic to developing each individual's creative potentials. Lowenfeld differentiates four different kinds of sensitivity: perceptual, aesthetic, emotional and social, and intellectual sensitivity. Perceptual sensitivity refers to the differentiated use of our senses by breaking sensory impressions into their components. Visual perception means not only seeing but observing, searching for the details of an object. Which outcomes of visual perception to expect would depend upon the developmental level. The prospective teacher should learn to observe intricate visual relationships. In the arts we also want to develop tactile, kinaesthetic, and auditive sensitivity. The plastic arts, dance, and music, respectively, are linked directly to these sensitivities. The teacher must be alert for opportunities to develop perceptual sensitivity, and his alertness depends greatly upon the refinement of his own perceptual sensitivity. It is important for the teacher to help the child move away from general impressions to the observation of detailed components of an object that can then be conceptualized into a perceptual whole.

Aesthetic sensitivity, the second type, is based upon transforming chaotic sensory data into harmonious relationships. The senses, in other words, are brought into harmonious relationships with the world, all of which are essential for integrating thinking, feeling, and perceiving. Aesthetic sensitivity is not limited in expression to art works but can become a way of relating to any human experience and thereby embody the total personality. It is not dependent upon external standards; standards are individualistic and emergent. This means that rigid rules for aesthetic relations inhibit creative expression. Aesthetic sensitivity also exhibits economy, whereby the media are handled with the greatest care so that potential characteristics are realized and nothing is superfluous. It is therefore necessary that teachers learn to eschew imposing rigid rules, express economy, and strive to utilize experiences that bring thinking, feeling, and perceiving into harmonious relations with one another.

Emotional and social sensitivity embodies the identification with one's

work and the realization of one's possibilities. This type of sensitivity helps to develop better human relations. But to relate more effectively to others, it is first necessary to understand oneself and achieve a creative identification with one's work. This absorption in one's work enables the individual to develop great sensitivity to the material being used. One comes to understand the media in an intimate manner. The teacher must understand the developmental characteristics of children and provide the type of experiences needed by the child at the time.

Finally, intellectual sensitivity in the arts, as might be expected, cannot be identified too closely with I.Q. test scores; it can be conceived as the ability to distinguish the essential from the unessential for purposes of understanding and communication. The essential in aesthetic experience differs according to the medium, the individual, his stage of development, and the particular experience he confronts. Thus, creative intelligence is a highly differentiated activity constituted by "the ability to relate expression and medium so intimately and uniquely to each other that they are so essential to each other that none can be replaced."[22]

The teacher must be able to distinguish the essential from the unessential and the subjective from the objective. Objective needs refer to media and procedures, while subjective needs relate to modes of expression. The teacher should help the child find the right technique for his mode of expression and be aware of the child's need for expression.

The objective of the arts program in the preparation of elementary teachers would be to cultivate these four types of sensitivity, to better prepare the teacher aesthetically for the future. Granted that great variations can be found in the creative capacities of prospective teachers and that such differences will persist at the end of the program (although modified considerably), the aim is not to mitigate differences or bring all teachers to a certain point of accomplishment but to awaken and nurture the creative potentials in each individual, whatever their form or magnitude. A two-year integrated sequence of work in music, drama, dance, writing, painting, and sculpting is needed to develop sensitivity in the arts. No illusions are harbored that such a program would uncover numerous poets, playwrights, or composers of great talent; but the program can aspire to cultivate the artistic sensitivities and make teachers more receptive and alert to the creativity in children. Teachers are likely to give less routine assignments and be more sympathetic to the fumblings and mistakes of children when they recall their own first experience in working in a new medium. The teacher will no longer merely tell children what to do but will be able to demonstrate confidently what is to be done.

How Children Create in the Arts

Recall that there are four forms of knowledge and that in the arts, other than historical, biographical, or empirical studies, it is not of a propositional type but takes the form of expressing meanings through ideas and images. There is no reason to believe that the child cannot create knowledge with the right kind of supervision and encouragement. His work will, of course, lack

the sophistication and complexity of form found in older youth and adults, but it represents an expression of the child's budding sensitivities.

Certain principles may prove helpful in getting children to engage in the creative expression of musical ideas. Children can be encouraged to differ expressively in constructive ways. When children are conforming to a fixed pattern, it is likely that an adult standard has been imposed upon them. This is not to imply that standards are inappropriate and adult guidance is unnecessary; rather, the point is that guidance through the use of standards must be used to unlock creativity. Creative features of art activities should not be an occasional feature but should permeate the entire program: to nurture creativity, creative teaching must be a characteristic feature. Creative teaching promotes the abilities and attitudes that enable the learner to make his own discoveries and seek his own mode of expression.

It may be objected that children cannot be creative until they first acquire certain basic skills in the arts. There is no substitute for "knowing that" and "knowing how" (even though disagreements still exist over the essential content and skills) before encouraging the child to embark on his own projects. Learning basics about music such as key signatures, meter signatures, identification of form, and so forth may be deemed essential before children are permitted to engage in creative activities. However, children have some natural musical inclinations that can be utilized in creative activities in which facts and skills are learned as by-products and interest in them is aroused by their enjoyment of music. Too often teachers demand that children develop skills before they have had an opportunity to express themselves musically. Situations should be promoted in which children first have a chance to explore and use music in terms of their natural inclinations.

Listening activities are one of the most basic activities for children. Listening is an active process in which observation, comparison, discrimination, and imagination are brought into play. Listening abilities are valuable not only in appreciating the music of others but in facilitating the creation of one's own music.

A child can decide whether a melody he is writing should go "up" or "down" at a certain point and experiment with rhythmic patterns on simple percussion instruments. Young children find that making up songs is a natural means of expression. Listening to children in unsupervised play one can hear speech and song interchanged. Creating simple songs is an ability that grows under the guidance of an effective teacher. Songs are written by setting words for a melody, composing a melody for words, or creating both simultaneously. The melody must lie within the range of children's voices; and if it is not a familiar melody, it should be one that is remembered after a few hearings. Music can also be composed for poems that have a lyrical quality. Those poems that the class has enjoyed reciting will usually make a good choice for material to set to music. The class can discuss the type of music called for by a particular poem, which should promote an awareness of the effect of melodies. Poems may also be written about a topic of interest, but it is probably best to select initially poems with considerable rhythmic movement and lyrical qualities. The melody for each phrase can be written or recorded on tape, and once secure in memory, the next phrase can be related to it. Rhythmic

patterns can be invented by use of percussion instruments and hand clapping. These interests may also lead children to an appreciation of electronic instruments, "prepared" pianos, Moog synthesizers, and other musical instruments of the future.

Folk dances and singing games have a definite appeal to children, especially where folk dancing is a socially accepted community recreation. Children can learn to make up their own singing games or vary known games. Songs can be invented from dance steps, and dance steps can be created from songs. Through videotaped instant replay, and through even more advanced future developments, the child can see himself immediately. Impersonation and dramatization also play a role in expressing meaning. No sharp dividing line can be made between the child's everyday activities and his impersonations, as at any moment he may break into an imaginative dramatization of some thing, animal, or person. Children learn to project themselves with pleasure in many situations and through impersonation can readily invent rhythms. A child also loses his self-consciousness through dramatization and may at that point find that he has a good singing voice. Children can learn to move in expressive ways and relate their movement to music. Movement may be initiated through narration and dramatization or through singing. Some simple songs are so strong rhythmically that children cannot resist skipping, marching, or galloping. They can learn to change the rate of movement with tempo changes and change direction with a repetition of phrase or cadence. The rhythm itself, rather than the teacher, should suggest the movement.

These are just a few ways to convey new meaning through the arts. Innumerable other possibilities exist in music and the other arts. Children create new "knowing how" forms and new personal knowledge forms that prove aesthetically satisfying and enhance their sense of self and their relation with others and to the world.

THE TEACHING OF VALUES AND ETHICS

Creation in the arts, as we have seen, produces aesthetic values. Aesthetics is concerned with the study of works of arts and the development of standards for their evaluation. It is also concerned with aesthetic experiences and the process of creating art objects. It is not limited to the fine arts but extends to aesthetic values in all aspects of human experience.

There are two other types of values: utility and moral. Utility values concern the quality or appropriateness of a means-ends relationship and the value of a product or object (in a nonaesthetic sense). It includes economic values and therefore relates to the many economic and financial issues facing education. It would comprise matters of efficiency and conservation of resources, which would relate to the operation of school systems, accountability, and performance contracting. Since utility values are concerned with the operation of school systems, included are important factors such as standards and policy.

Primary attention in this section, however, will be given to the third type of values--moral values. Moral values relate to right conduct, moral

obligation, and the "good life" in the sense of the morally good life. Some moral statements prescribe conduct toward others; others cite an individual's duty or responsibility toward others or society. For instance, the statement, "Be honest in your dealings," prescribes conduct; whereas, "You should return home after college to aid your elderly parents with their business," is a statement of moral obligation. Moral statements about the good life, on the other hand, relate to an entire way of life, such as Christianity, Buddhism, Confucianism, Utilitarianism, Marxism, and others. These are normative or ethical systems consisting of a set of goals combined with rules and principles designed to regulate conduct.

Morality refers to right conduct and its principles, whereas ethics is the systematic study of right conduct (although it sometimes is used colloquially as synonymous with morality). Normative ethics is a study of the relative worth of different ways of life. It also seeks to develop a set of judgments about moral values concerning conduct and obligation.

Metaethics, in contrast to normative ethics, is not interested in examining or formulating systems that would show people how to live their lives; instead, it focuses on the meaning of ethical terms and the justification of ethical reasoning. It also addresses itself to the difference between moral and nonmoral terms. These interests of moral philosophers have led to the development of various interpretations for justifying ethical statements; but such disputes (which we shall not pursue) have failed to lead to any widespread agreement.

The concern over moral education is not new. Educational systems in various cultures since antiquity have usually espoused more than cognitive outcomes; these systems sought, in most cases, to develop a certain type of individual, a person, among other things, of sound character. And character, of course, was formulated according to the dominant norms of society or the values of those who controlled the educational system. Leading educators, both past and present, usually expressed their educational philosophy in terms of not only intellectual changes but moral outcomes as well. Granted that some essentialists, such as Bestor and Rickover, seem to limit their aims to the development of the mind, this particular brand of essentialism would appear to be an exception when we consider the ideas of leading educators from Plato and Confucius to the present.[24]

There appears to have been a recrudescence of interest in moral education during the past five years, the likes of which have not been seen since the character education movement during the 1920s. Before speculating that such interest is due to some post-Watergate phenomenon, we should note that this interest is also manifest in England. A recent national survey in England shows that 60% of the teachers and other educators responding are in favor of a separate course in state-supported schools devoted to moral education.[25] Not only has the number of publications on moral education multiplied in recent years, but a number of divergent programs, of varying degrees of promise, have been created. An emerging world of the future in which social relations are temporary, diverse, and fragmented has also contributed to a heightened interest in the examination of values.

Values are no stranger to schools. Value decisions are involved in choosing aims and selecting the means for their achievement, in allocating funds in terms of a set of priorities, in determining curriculum content, in attempting to establish desired outcomes for the instructional process, and in developing a professional code of ethics. Whether consciously or not, the teacher influences the student's behavior and his attitudes toward learning by the teacher's choices and the example he sets. It is not only what the teacher says but also his nonverbal behavior that students observe: the tone of his voice, facial expression, and muscular tension. One's body language gives off the feeling tone and conveys to another whether one is bored, angry, frightened, or experiencing some other emotional state.[26] Today more educators believe that moral education should not be left to chance and informal cues but must be deliberately developed in the most effective way.

The Development of Moral Judgment

Theories of moral development describe how children learn a moral code and how thought and action change. These developmental changes have usually been stated in terms of stages of moral growth and judgment. The bearing that such theories have on programs of moral growth (assuming that the theory has sufficient supporting evidence) is to clarify the judgments of children and youth in the moral sphere and to apprise educators of what to expect so that a suitable program can be established. However, such theories at best do no more than set the outer boundaries and enable the teacher to anticipate the types of reasoning patterns likely to be found with different ages. These theories cannot specify a program, but they can show what expectations would be reasonable, and what type of content would likely be above or below the child's ability. Once again, however, individual differences must also be considered, and we must guard against equating too strong a relationship between chronological age and moral reasoning ability.

Among the psychological studies of moral development, Piaget's theory is one of the most widely discussed and influential.[27] Piaget holds that all morality consists of a set of rules and is based on the respect the individual acquires for the rules. Although most rules are developed by adults and transmitted to children, Piaget was more interested in the child's own conception of rules and therefore turned attention to the games children play. He elected to study the game of marbles. He identified four developmental stages in the "practice" of rules (how children apply rules) and three in the "consciousness" of rules (ideas children hold about the character of game rules).

The first stage in the practice of rules is the motor or individual stage, characteristic of the child up to the age of two. The rules that apply are determined by his neuro-muscular development; play activities are almost entirely solitary, so common rules are unnecessary.

In the egocentric or second stage from the ages of two to five, the child receives and imitates the rules of others. He still plays alone, or when he plays with others, he does not try to cooperate or win. The initiated rules are practiced according to his own fantasy; and since the rules are considered sacred, any alteration is interpreted as a transgression.

The third, or cooperative, stage begins about the age of seven or eight. The child now tries to win, becomes more socially oriented, and shows interest in the mutual control and unification of the rules, even though his ideas about these rules are still rather vague.

By the age of eleven or twelve the fourth and final stage begins. The rules of the game become fixed in every detail, and there is wide agreement among the players as to the rules of the game. Children now enjoy discussing the rules and recognize that the rules are formed by mutual consent, that once agreed upon they should be observed in playing the game; they also realize, however, that a majority can alter the rules. It is at this stage that the child's attitudes and practices most closely resemble those of adults.

Piaget's conceptions of learning and moral judgment have arisen from his own way of investigation. He writes of his work being experimental, but it is not experimental in the tradition of American or British experimental psychology. It has also been said that Piaget's stages of moral development do not meet his own criteria for a developmental stage sequence.[28] Piaget does not explain how the exceptional child can rise to a higher level than his peers; he fails to consider socioeconomic and sex differences; he does not consider the affective content of moral judgments. Piaget shows, however, that the principle of readiness must be taken into account in any program of moral education, and his influence has been great on other researchers.

Some believe that the investigations of Kohlberg mark an improvement over Piaget's work.[29] Kohlberg raises the question of whether values are relative or universal and indicates that his findings show culturally universal stages of moral development. His theory, he claims, is both psychological and philosophical, and his findings generate a philosophy of moral education designed to stimulate moral development rather than teach fixed moral rules. His theory has been influenced by Dewey.[30] Kohlberg believes that a philosophic concept of morality and moral development is required, that moral development passes through invariant qualitative stages, and that moral development is stimulated by promoting thinking and problem solving. *Justice,* Kohlberg holds, is the key principle in the development of moral judgment.

Kohlberg owes a great deal to Piaget's pioneering work; he has sought to overcome the deficiencies in the latter's research by using a much larger sample that is more broadly based socially and is composed of equal proportions of popular and socially isolated children. Kohlberg also was concerned with general moral principles rather than, as with Piaget, simple virtues and vices. Kohlberg's study yielded six developmental stages allotted to three moral levels. Subsequent retesting of the group at three-year intervals has shown growth proceeding through the same stages in the same order.

I. Preconventional Level

Stage 1: Orientation to punishment, obediance, and physical and material power. Rules are obeyed to avoid punishment.

Stage 2: Naive instrumental hedonistic orientation. The child conforms to obtain rewards.

II Conventional Level

Stage 3: "Good boy" orientation designed to win approval and maintain expectations of one's immediate group. The child conforms to avoid disapproval. One earns approval by being "nice."

Stage 4: Orientation to authority, law, and duty, to maintain a fixed order, whether social or religious. Right behavior consists of doing one's duty and abiding by the social order.

III. Postconventional, Autonomous, or Principled Level

Stage 5: Social contract orientation, in which duties are defined in terms of contract and the respect of others' rights. Emphasis is upon equality and mutual obligation within a democratic order. There is an awareness of relativism of personal values and the use of procedural rules in reaching consensus.

Stage 6: The morality of individual principles of conscience that have logical comprehensiveness and universality. Rightness of acts is determined by conscience in accord with ethical principles that appeal to comprehensiveness, universality, and consistency. These principles are not concrete (like the Ten Commandments) but general and abstract (like the Golden Rule, the categorical imperative).

These stages are based on the ways of thinking about moral matters. Stages 1 and 2 are characteristic of young children; whereas Stages 3 and 4, according to Kohlberg, are ones at which most of the adult population operates. No more than 20 to 25% of the adult population have reached the last two stages, with only about 5 to 10% at Stage 6.

This theory recognizes that affectional factors may enter into moral judgments but that such judgments are primarily a function of rational operations. Moral development is a result of increasing ability to perceive social reality and to integrate social experience. A necessary--but not sufficient--condition for morality is the ability to reason logically. But the more important determiners of moral development are the amount and type of social experience and the opportunity to assume other roles and confront different perspectives.

Despite the virtues of this cognitive-developmental approach to moral education, the theory's most obvious deficiency is its inability to explain effectively the influences of the affective domain on moral development. Additionally, Kohlberg's advice that teachers remain affectively neutral has been argued against by Bricker, who urges that teachers, despite the inherent dangers of doing so, become involved.[31] Teachers who are uninvolved, Bricker claims, encourage students to be also. Students are then unlikely to grow morally in school. Moral education, as he views it, is an encounter between two valuing human beings.

Other criticisms are directed toward the developmental stages and the logical order of moral concepts in the stages themselves.[32] Specific criticisms have been made that the stages need to be delineated more precisely:

the distinction between Stages 5 and 6 is not clear; conceptual links can be found between Stages 2 and 5 that do not exist between 2 and 3; and possibly more advanced stages are needed as well as finer calibration within the stages. It has also been suggested that the stages lack any necessary connection with moral action and therefore what has been provided are stages of general cognitive, rather than moral, development.

Important investigations in other moral areas should be mentioned. The Character Education Inquiry in the late 1920s administered 170,000 tests to over 8,000 public school pupils and nearly 3,000 private school pupils between the ages of 11 and 16 years.[33] The tests confronted children with the opportunity to cheat or with a conflict between their own good and that of others. They were, for example, given a chance to take money while they thought they were unobserved; to violate the time limit on a speed test; to cheat while grading their own papers; and to place dots in small circles while blindfolded without cheating.

About 7% did not cheat at all, and about 4% cheated at every opportunity; the vast majority acted honestly in some situations and dishonestly in others, and there was consistency in these patterns when the tests were repeated. This led Hartshorne and May, the principal investigators, to the rather startling conclusion that behavior is highly specific, depending upon the specific case; there is no such thing as honest and dishonest children but only honest and dishonest acts. Thus little evidence was found of unified character traits or generality in moral behavior. The concept of character based upon specific acts fits the stimulus-response theories of learning. Some other investigators have refined the data and corroborated the findings. Gross found that children who cheat in class in one type of situation do not do so in another.[34] And Stendler found that children who regard cheating as wrong in one situation are able to rationalize it in another.[35]

However it is implausible that honesty in one situation cannot be generalized to other situations (and the same with other character traits); otherwise it would be necessary to learn innumerable acts of honesty for each new situation one confronts. In practice, both generality and specificity can be found in human conduct. Low correlations could be rightfully expected from children, because of the lengthy period needed for socialization; adults, on the other hand, would more likely show consistency in moral virtues. Another study, which used the methodology of the Character Education Inquiry but observed adults, rather than children, in situations that offered opportunity for apparently unseen cheating found consistency in both honest and dishonest subjects, and a general trait of honesty was evidenced.[36] Thus we can conclude about character traits that they are less consistent, more situation-specific in children and more consistent and general in adults.

Moral Education Programs

The goal of moral education, we believe, is to develop the morally autonomous individual. The morally autonomous person, "characteristically finds the locus of evaluation within himself, assumes responsibility for his acts, and is self-governing as he strives for freedom and mastery."[37] This goal will

be discussed later; but for the moment let us keep it in mind as we examine selected moral education programs.

First, however, we should note progress in the measurement of values. Kerlinger, for instance, considers that progress in their measurement has not been nearly as great as in the measurement of attitudes, but he expects considerable improvement within the next decade.[38] He considers both attitudes and values as belief systems, the difference being that the former has specific referents (e.g., neighborhood schools, the three Rs, and school busing) and the latter has abstract referents and principles, behavioral norms as standards, and endstates of life (e.g., loyalty, freedom, equality, and moral standards in education).

Among the earlier measurement scales, The Study of Values seeks to measure the relative prominence of six basic interests or motives--theoretical, aesthetic, social, political, economic, and religious--based on Spranger's six-types-of-men theory.[39] The study is more a measure of interests than of beliefs about norms and values. Morris's 13 Ways To Live, developed initially from literary sources and later tested cross-culturally, is difficult to administer and interpret because of the complex literary style.[40] The inventory developed by Scott overcomes these difficulties but may be limited by the range of content and overemphasis on such ideal personality traits as kindness, creativity, and the like.[41] The Survey of Values, developed by Rokeach, consists of terminal and instrumental values that subjects are expected to rank order in terms of preference.[42] It is promising for isolating and delineating value dimensions. More recently, Lorr and others constructed an inventory of personal value statements from which liberal-conservative attitudes were predicted to a high degree from the subjects' value orientation.[43] The four value dimensions were labelled Acceptance of Authority, Work Ethic, Humanistic Orientation, and Hedonistic Orientation. Although we do not personally consider the measurement area the most important aspect of value study, we can conclude that the widespread interest today in both values and measurement should ensure the accuracy of Kerlinger's prediction.

Many new programs, differing in theory and instructional practices, have recently been developed in the U.S. and England. Only those that ostensibly are theoretically sound or have enjoyed considerable influence will be treated, although we will allude briefly to several others.

Present programs exhibit a wide array of shortcomings: too unwieldy or complex to be used by classroom teachers,[44] theoretically faulty,[45] and lacking a theory of moral education or development.[46] There are other programs that show considerable promise but are only tangentially related to moral education.[47]

To judge by its widespread recognition in the education literature,[48] the most accepted program today in the U.S. for the teaching of values is known as Values Clarification.[49] The program eschews teaching or inculcating a fixed set of values; instead it is based on a value process for examining, clarifying, and accepting or rejecting values. It posits values as based on three processes: choosing, prizing, and acting. Choosing should be (a) free (b) from alternatives, (c) after thoughtful consideration of each alternative.

Prizing involves (d) cherishing and being happy with the choice and (e) willingness to affirm the choice publicly. Acting consists of (f) doing something with the choice and (g) doing it repeatedly, in some life pattern.[50]

There are some theoretical problems in the program, however. One searches in vain for some conception of "free"; yet the authors tell us that values should be "freely selected" for the student to prize them. Since it is well known that there are numerous determining factors at any given moment influencing the choices of students, clarification is needed as to the character and extent of freedom necessary in the value-clarifying process. In other words, is some condition over and above an absence of coercion expected? If so, then to what extent does the teaching process interfere with "freely selected" values even when there is no explicit attempt to inculcate a set of values? The selection of a certain method of value clarification seems to presuppose a particular method of inquiry by which values can be clarified. The program seems to draw, with certain variations, upon Dewey's problem-solving method and an approach in the teaching of social studies that also was inspired by Dewey.[51] It would appear to be oriented too exclusively toward convergent thinking and thereby neglect divergent thinking, creative thinking, and the affective domain. However, it is well developed on the side of action and practice.

The step in which one is expected to choose after a thoughtful consideration of the consequences seems indefensible unless a prior set of values or normative principles is used to enable one to choose alternatives intelligently; yet the authors assume that values emerge subsequently to this process. Another difficulty lies in their imprecise and unworkable definition of "values" as "those elements that show how a person has decided to use his life."[52]

Despite these and other conceptual shortcomings that we will not go into, the values clarification program is expressed in simple and direct language that can be readily comprehended, and the program is vitalized by many diverse clarification exercises and strategies. Reports show that the program has been employed with some success in a number of different curricular areas.[53]

A program that has not been as widely used but exhibits less theoretical difficulties was developed by several researchers in conjunction with the National Council for the Social Studies.[54] Six tasks are conducted in the evaluative decision-making process: (a) identifying and clarifying the value questions, (b) assembling purported facts, (c) assessing their truth, (d) clarifying the relevance of facts, (e) arriving at a tentative value decision, and (f) testing the value principle implied in the decision.[55]

This approach does overcome the weakness of the values clarification program of failing to operate with a value principle before examining social consequences. On the other hand, the approach is less adequate than values clarification on the action or practice side. Moreover, both programs neglect divergent thinking, creative thinking, and the affective domain.

Several approaches can be used for relating more closely to the affective domain. Hartoonian suggests that metaphor, mythic thought, and narrative can

serve as a unifying influence and make explanation more effective.[56] The study of biography, others have said, provides students with a different type of data based on lived values, fosters greater involvement, and encourages the development of their own value system.[57] It should be added that students should write their own future autobiography and learn to anticipate the rate of change and make long-range predictions about the society in which they will be living. These procedures are useful and should be tried, but perhaps they do not go far enough. Greater empathy and sensitivity to others need to be developed. For instance, let those who claim that persons on welfare are "shiftless" and "immoral" live with a family on welfare for a month and immerse themselves in the sights, sounds, and smell of their life. Let those who remain indifferent to the world food shortage and continue their profligacy take up residence for a time with a family suffering from malnutrition. We will have to get inside another's way of life, tread in his shoes, perceive the world through his eyes, and share with him the tragedies, joys, and sorrows before we can fully sensitize ourselves and go beyond merely talking about values at an intellectual level. The development of such sensitivity is far more likely to eradicate prejudice than value programs based primarily on convergent thinking.

It should also be noted that most programs for the teaching of values overlook the importance of human nature theories. A survey of the literature from the biological, social, and behavioral sciences pertaining to moral education showed that many authors utilize an implicit but unacknowledged theory of human nature.[58] Some persons, such as Crittenden, would agree that whenever we appeal to the reasonableness of a set of moral rules we depend for their justification on fundamental values such as the inherent dignity and equality of human beings that grow out of a conception of man.[59] More urgently, it has been claimed that an understanding of human nature may be necessary to the very survival of our species.[60]

Moral Autonomy and Full Humanness

Moral education and the teaching of values should be placed within the context of the emerging world in which we live. Our world has been characterized by a shift from industrial to postindustrial societies. According to Kenniston, the transition brings with it a major change in values.[61] An industrial ethic emphasizes achievement orientation, self-discipline, delay of gratification, and, particularly, economic success and productivity. Industrial societies also tend to reward achievement rather than ascribed status, apply relatively uniform standards, and emphasize rationality in work and public life. Many young people today, however, have grown up in family environments of affluence and political freedom, and therefore the psychological and economic imperatives that motivated their parents are relatively weak. In a society of abundance, youth increasingly turns to ways of living meaningfully with the goods and leisure already available or developing means to distribute goods more equitably.[62] Today the moral imperative behind production, acquisition, materialism, and abundance has been lost.

Getzels observed that the traditional U.S. values of the work/success ethic, future-time orientation, independence, and Puritan morality changed

during the late forties and midfifties to a set of transitional values characterized by sociability, present-time orientation, conformity, and moral relativism.[63] Between the middle and late sixties a set of emergent values was transforming our way of life: a change from sociability to social responsibility, present-time orientation to relevance, conformity to meaningful interdependence, and moral relativism to moral commitment.

These changes have considerable bearing upon both goals and content in moral education. In a world of unexpected crises and amazing material, technological, political, and economic transformations coupled with shifting and newly emerging value systems, it is obvious that we must be prepared to create new social systems for living in what Bennis and Slater call "the temporary society."[64] We believe that the morally autonomous person, in light of these developments, is most likely to cope successfully with sudden changes and be able to cultivate meaning and a sense of values in such a perplexing world. This person, as stated earlier, characteristically finds the locus of evaluation within himself, assumes responsibilities for his acts, and is self-governing as he strives for freedom and mastery.

To become more morally autonomous is to become more fully human, for man is above all a moral being. While not only avoiding dehumanizing situations but also deliberately attempting to create the conditions that humanize, the individual needs to combine greater autonomy with compassion. A lack of autonomy expresses itself at the personal level as excessive conformism, inability to form independent judgments or to disagree with anyone, and dependence upon others far in excess of objective necessity. It is also represented by extreme resentment and rejection of others, intolerant rebelliousness, and the need to test or "prove" oneself continually.

On the other hand, the morally autonomous person, to develop moral understanding, generates higher order principles from his philosophy of life; he remains flexible and capable of reinterpreting the principles in the light of conflicting situations; he can envision the social consequences of his acts and modify his behavior, because his openness to experience provides him with alternative modes of action.

This configuration of characteristics is combined with compassion, the antithesis of social callousness, to enable one to become more fully human. Provision is therefore made for the outcomes of both independence of judgment and the interdependence of social life. While undoubtedly there are other traits worthy of cultivation, these characteristics must be given full consideration in any program to develop full humanness and moral autonomy.[65]

NOTES

1. A. D. Woozley, Theory and Knowledge (New York: Barnes and Noble, 1966), p. 191.

2. Israel Scheffler, Conditions of Knowledge (Chicago: Scott, Foresman, 1965), p. 21. A somewhat different version of the necessary and sufficient conditions for knowing can be found in A. J. Ayer, The Problem of Knowledge (Baltimore, Md.: Penguin Books, 1956), p. 35.

3. Scheffler, pp. 23, 75.

4. Gilbert Ryle, The Concept of Mind (New York: Barnes and Noble, 1949), pp. 25-61. However, not all philosophers accept Ryle's distinction between "knowing how" and "knowing that." Hartland-Swann argues that "knowing that" is a subspecies of "knowing how." See his An Analysis of Knowing (London: George Allen and Unwin Ltd., 1958), pp. 56-65.

5. Philip H. Phenix, Realms of Meaning (New York: McGraw-Hill, 1964), ch. 16.

6. For a further development of these ideas, see the author's article, "Ideographic Holistic Thinking in Education: An Alternative to the Scientific Model," in The Educational Forum, forthcoming.

7. G. Wallas, The Art of Thought (New York: Harcourt, Brace, and World, 1926).

8. B. Ghiselin, ed., The Creative Process (Berkeley: University of California Press, 1952); and Mary Henle, "The Birth and Death of Ideas," in Contemporary Approaches to Creative Thinking, edited by H. E. Gruber and others. (New York: Atherton Press, 1962), pp. 31-62.

9. Cf.: J. W. Getzels and P. W. Jackson, Creativity and Intelligence (New York: Wiley, 1962); and L. Hudson, Contrary Imagination (London: Methuen, 1966).

10. J. P. Guilford, Personality (New York: McGraw-Hill, 1959); and also his The Nature of Human Intelligence (New York: McGraw-Hill, 1967).

11. J. P. Guilford and P. R. Merrifield, The Structure-of-Intellect Model: Its Uses and Implications (Los Angeles: University of Southern California, Psychological Laboratory, 1960).

12. Anne Roe, The Making of a Scientist (New York: Dodd, Mead, 1952); and Frank Barron, The Creative Person and the Creative Process (New York: Holt, 1969).

13. Henri Poincaré, "Mathematical Creation," in The Creative Process, edited by Brewster Ghiselin (New York: New American Library--Mentor, 1955), p. 36.

14. Bertrand Russell, "How I Write," in The Basic Writings of Bertrand Russell, edited by Robert E. Egner and Lester E. Denonn (New York: Simon and Schuster, 1961), p. 64.

15. Two of the leading programs are Osborn's "brainstorming" and practical problem solving and Gordon's "synectics," which is based on analogical thinking to generate new ideas. See: Alexander F. Osborn, Applied Imagination, 3rd ed. (New York: Scribner's, 1963); and W. J. Gordon, Synectics: The Development of Creative Capacity (New York: Harper, 1961).

16. S. J. Parnes, Programming Creative Behavior (Washington, D.C.: U.S. Department of Health, Education, and Welfare/Office of Education: Title VII, Project No. 5-0716); and W. M. Turner and J. D. Rains, "Differential Effects of 'Brainstorming', Instructions upon High and Low Creative Subjects," Psychological Reports 17 (1965): 753-54. Parnes states that of 40-odd studies, 90% support the conclusion that productivity in creative thinking can be increased significantly.

17. For some provisions needed in this regard in an education for the future, see: Glenn Heathers, "Education Needed To Meet the Psychological Requirements for Living in the Future," in Forecasting the Educational Future, compiled by Joel L. Burdin and others (Washington, D.C.: ERIC Clearinghouse on Teacher Education, June 1974), pp. 19-30. ED 091 343.

18. L. S. Kubie, Neurotic Distortion of the Creative Process (Lawrence: University of Kansas Press, 1958); and Anne Roe, "Personal Problems and Science," in The Third (1959) University of Utah Research Conference on the Identification of Creative Scientific Talent, edited by C. W. Taylor (Salt Lake City: University of Utah Press, 1959), pp. 202-12.

19. Vincent Tomas, "Creativity in Art," in Creativity in the Arts, edited by Tomas (Englewood Cliffs, N.J.: Prentice-Hall, 1964), p. 101.

20. The author has relied considerably for this theory upon Tomas, pp. 97-109; and Monroe C. Beardsley, "On the Creation of Art," The Journal of Aesthetics and Art Criticism 23 (Spring 1965): 291-304.

21. Viktor Lowenfeld, "Basic Aspects of Creative Teaching," in Creativity and Psychological Health edited by Michael F. Andrews (Syracuse, N.Y.: Syracuse University Press, 1961), pp. 129-41.

22. Lowenfeld, p. 137.

23. See the author's "A Philosopical Analysis of Educational Standards," Educational Theory 17 (April 1967): 160-66; and New Directions in Educational Policy (Lincoln, Nebr.: Professional Educators Publication, 1974).

24. This point is supported more fully in a study of changing conceptions of moral education from the emergence of Christianity to the present day: E. B. Castle, Educating the Good Man (New York: Collier Books, 1962).

25. Philip R. May, Moral Education in School (London: Methuen Educational ltd., 1971), p. 54.

26. Various ways have been developed for studying teacher nonverbal behavior: Charles M. Galloway, "Nonverbal Communication in Teaching," Educational leadership 24 (October 1966): 55-63; and Barbara M. Grant and Dorothy Grant Hennings, The Teacher Moves: An Analysis of Non-Verbal Activity (New York: Teachers College Press, 1971).

27. Jean Piaget, The Moral Judgment of the Child (New York: The Free Press, 1965).

28. Jean Piaget, The Construction of Reality in the Child (New York: Basic Books, 1954).

29. For Kohlberg's theory, along with his criticisms of Piaget, see his "Development of Moral Character and Moral Ideology," in Review of Child Development Research, Vol. I, edited by M. L. Hoffman and L. W. Hoffman (New York: Russell Sage Foundation, 1964), pp. 383-431; and "Stage and Sequence: The Cognitive-Developmental Approach to Socialization," in Handbook of Socialization Theory and Research. edited by D. A. Goslin (Chicago: Rand McNally, 1969), pp. 347-480.

30. However, Kohlberg's universal ethical values, along with other aspects of his theory, differ from Dewey's views, which are transactional and situational.

31. David C. Bricker, "Moral Education and Teacher Neutrality," School Review 80 (August 1972): 619-27.

32. C. M. Beck and others, eds., Moral Education: Interdisciplinary Approaches (Toronto: University of Toronto Press, 1971), pp. 355-72.

33. Hugh Hartshorne and M. A. May, Studies in the Nature of Character: Studies in Deceit (Vol. I), Studies in Service and Self-Control (Vol. II), Studies in the Organization of Character (Vol. III). (New York: Macmillan, 1928-30.)

34. S. M. Gross, "The Effect of Certain Types of Motivation on the 'Honesty' of Children," Journal of Educational Research 40 (1946): 133-40.

35. C. R. Stendler, "A Study of Some Socio-moral Judgments of Junior-high School Children," Child Development 20 (1949): 15-28.

36. Urie Bronfenbrenner, "The Role of Age, Sex, Class and Culture in Studies of Moral Development," Religious Education (July/August 1962).

37. In the author's Education and Human Values (Reading, Mass.: Addison-Wesley, 1968), p. 81.

38. Fred N. Kerlinger, "The Study and Measurement of Values and Attitudes" (Paper presented at the American Educational Research Association meeting, 3-7 April 1972, Chicago). ED 079 618.

39. G. W. Allport and others, The Study of Values (Boston: Houghton Mifflin, 1951).

40. Charles Morris, Varieties of Human Value (Chicago: University of Chicago Press, 1956).

41. W. A. Scott, Values and Organizations (Chicago: Rand McNally, 1965).

42. M. A. Rokeach, "A Theory of Organization and Change within Value-Attitude Systems," Journal of Social Issues 24 (1968): 13-33.

43. M. Lorr and others, "The Structure of Values: Conceptions of the Desirable," Journal of Research in Personality 7 (1973): 139-47.

44. Philosophical assessment programs, developed by John Wilson utilizing a complex system of acronyms, appear to be too abstruse and unwieldy to be used effectively by classroom teachers: John Wilson, Moral Education and the Curriculum (Oxford: Pergamon Press, 1969); and his The Assessment of Morality (Windsor, Berks: NFER Publishing Company Ltd., 1973).

45. A program called "Value-Sharing" describes values as facts and uses for its content those values and institutions that have persisted the longest: Value Sharing: A Creative Strategy for American Education (Evanston, Ill.: National College of Education, 1969).

46. A program in England called "Lifeline," used by 20,000 pupils, is designed "to help pupils adopt a considerate style of life," but it is not clear on what theory, if any, the program rests: Peter McPahil and others, Moral Education in the Secondary School (London: Longman Group Ltd., 1972).

47. A significant program for clarifying public controversy has some value dimensions but pertains to the teaching of social studies: Donald W. Oliver and James Shaver, Teaching Public Issues in the High Schools (Boston: Houghton Mifflin, 1966). More limited is my approach to preparing teachers to analyze educational issues by using informal logic, propaganda analysis, and the application of ideological frameworks: Conflict and Decision (New York: Harper and Row, 1972), chs. 1 and 2.

48. However, I have seen no figures to indicate how widely the program is currently being used in school systems here and abroad.

49. Louis E. Raths and others, Values and Teaching (Columbus, Ohio: Charles E. Merrill, 1966). This book, in which the program and exercises first received systematic attention (some of the authors had addressed themselves to the topic prior to this work), was later followed by a handbook of 79 activities or strategies for helping students gain skill in the process of value clarification: Sidney B. Simon and others, Values Clarification: A Handbook of Practical Strategies for Teachers and Students (New York: Hart, 1972).

50. Raths and others, p. 30.

51. This approach is found in Maurice P. Hunt and Lawrence Metcalf, Teaching High School Social Studies (New York: Harper and Row, 1955).

52. Raths and others, p. 6.

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61. Kenneth Kenniston, "You Have Got To Grow Up in Scarsdale To Know How Bad Things Really Are," New York Times Magazine (April 27, 1969).

62. The fact that postindustrial societies are now experiencing shortages in certain natural resources does not vitiate Kenniston's argument, as the central characteristics and problems facing youth in postindustrial societies still hold.

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65. I am indebted to ERIC for bringing to my attention through their print-out service and microfiche library the materials used in the notes.

THE CELEBRATION OF HUMANISM

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HUMANISM

It might be helpful to begin with some clarification of the way in which I shall be using this key term, "humanism," and some of its satellite terms. Because the word has been in use for a long time and because it has found favor with a wide variety of word-fanciers, it has been applied to a bewilderingly diverse and even mutually contradictory array of phenomena. Thus, we had Renaissance humanists like Pico della Miradola who wanted to establish man rather than God at the center of the world-picture. But there were also Christian humanists like Erasmus whose *Weltanschauung* was essentially religious. In the seventeenth, eighteenth, and nineteenth centuries, humanism was usually associated with the study of the history and literature of classical Greece and Rome. Too often, the humanists of the schools and universities were narrow pedagogues who crystallized the bold and ancient vision of humanism into a sterile and sometimes sadistic philological ritual.

Amidst the religious controversies of the nineteenth century, humanism became identified with scientific humanists like T. H. Huxley and took on an antireligious connotation that still sometimes confuses its meaning. This is the association that survives among antisupernaturalists like Unitarians, who are proud to acknowledge themselves as humanists--but for whom religion is nevertheless a valid perspective on the world. There is also an abiding connection between humanism and the study of the "humanities," but the latter is also an elastic term. For some, it retains its traditional meaning of the study of Latin and Greek. In the U.S. it includes, within its fairly restricted but not altogether clear boundaries, literature and philosophy, with history hovering uncertainly on the edge. The English adopt a broader notion of the term by including in it what U.S. citizens call the fine arts and social sciences.

In recent years, a related term has begun to receive increasing attention. This is "humanistic education." Again, this is a concept that is variously employed. But I think it is a useful expression and I shall use the term "humanistic" in this chapter as the adjectival form of "humanism." Hence, humanistic education will be, for me, education for humanism, or a humanizing education. But what can it mean to "humanize"? Surely we cannot talk of educating people to make them human, or more human. Uneducated people are clearly human, in the sense that they belong to the species homo sapiens and posses the attributes and capacities that one associates with human beings. Nor can we embrace beyond an initial flirtation the idea of making people *more* human. I am compelled to regard the Hitlers, Nixons, Eichmanns, Ehrlichmans, and other spectacular and furtive tyrants of the world as essentially human, for I can, in my more honest moments, recognize in myself and at times perceive in

others, echoes and whispers of even the most cruel, cowardly, greedy, treacherous, and hateful acts. We are all humanly related, even--or perhaps especially--to those whom we regard with loathing and contempt.

Human is as human does. Human acts, in their infinite variety, rarely fail to excite my interest. But they do not always evoke my admiration. Hence I do not regard "human" as a model on which to build an educational program. In other words, "human" is descriptive of a species but in itself it is not a prescriptive or value-laden term. What I seek as the basis for an educational program, however, is precisely a term that will carry the freight of a system or pattern of values. Such a term is already available in "humane." I shall adopt this term as the sibling of "humanism" and "humanistic" and run the risks of semantic overload, rather than coining a new word, with all the perils of neology, obfuscation, and pride of ownership.

I am suggesting, then, that the term "humanism" be regarded as essentially value laden, like "humane," "humanize," and "humanistic." Not everything human is to be included in the concept. While some human feelings, thoughts, acts, skills, and capacities are to be encouraged and nurtured, others are to be discouraged and excluded. The celebration and nurture of humanism may well mean letting a hundred flowers bloom. But it also means making hard distinctions between flowers and weeds and pursuing a vigorous policy of removing those weeds that threaten to choke the flowers.

Educating for humanism involves us inescapably, I am arguing, in value decisions at every stage. The remainder of this chapter will constitute an attempt to elicit what some of the most important of those values are, against a background of anticipated future developments and with a view to the implications of those value preferences for a program of teacher education.

The basis of such a humanistic program must be a clear-eyed examination of the nature of man as a species. He is neither an angel nor a devil, although he is capable of both divine and hellish acts. In looking to the future of our species, it is advisable to avoid both sentimental naivete and pessimistic cynicism about human nature, for neither is a reliable prognosticator of human behavior. We need to gain an understanding of the nature of man that is both free from illusion and supported by reasonable hope to have a chance of ecological survival through the remainder of this century.

As I trace out some of the humanist's hypotheses and assumptions about the nature of man, let me set them against some of my expectations about major future developments that face us. I shall suggest what the humanistic response to these developments might be and then try to translate these responses into the form of a program of teacher education.[1]

Two future developments that seem assured are increasingly rapid technological development and knowledge expansion. We have already experienced enough of these changes in the U.S. to have some feeling for

the bewilderment, impotence, and panic that can be engendered in the individual as he witnesses and tries to adapt to such developments. There is little chance that these trends will reverse, slow down, or even fail to accelerate.

Humanism is, in essence, putting humankind in the center of the picture. Throughout the tapestry of interpretations of the word, this theme runs like a golden thread. Man, his welfare and his nurture, must remain paramount. Thus, a humanistic society is person centered rather than thing centered. How far the contemporary U.S. falls from this standard can be judged, for example, by the extent to which we allow cities to be designed and altered according to the needs of the automobile rather than those of the person. In education, we have already gone disastrously far along dehumanizing detours such as "knowledge for its own sake," "the demands of the discipline," "teacher proof curricula," "objective examinations," and other shibboleths.

As industrial and military technologies become more potent and sophisticated, there is a correspondingly greater need to establish human control over them and to ensure human responsibility for their uses. Similarly, more effective educational technology, media, and methodology require greater human responsibility for their use in accordance with clearly visualized value judgments. The flight from personal responsibility is one of the most certain indications of a dehumanized society. We need to take special note of educational manifestations of this escape, such as fleeing into the security of supposedly objective statistics, measurement, and testing procedures. There are, of course, no testing procedures that are objective in the sense of being exempt from the subjective value judgments of the tester, either in framing the questions or in deciding what is important to test. The humanistic educator raises these often hidden value judgments to the level of public scrutiny so that the tester can begin to take full responsibility for his choices and decisions.

In teacher education, humanistic programs of the future will be interdisciplinary and focused on personally meaningful problems. They will avoid the narrow, academic overspecialization that has marred higher education in the U.S. in the third quarter of the twentieth century. They will engage the active initiative of the participant by regarding him or her as a person worthy of dignified and respectful treatment, rather than centering on the discipline or field of knowledge, which usually engenders passivity in the neophyte. The development of a strong and positive self-concept among participants is a fundamental goal of humanistic education.

The last quarter of this century is also likely to see powerful changes in religion and politics, the shape of which is already becoming apparent. There is bitter disenchantment with traditional forms of religious and political activities. The fall in church memberships and the disillusionment from Watergate are obvious manifestations. A resurgence of humanism will be characterized by active and widespread participation in religion and politics, but in radically different forms from those with which we are most familiar.

In political terms, to humanize means to open, demythologize, and demystify. If we can now recognize the secrecy and mystification and mythologizing of the Nixon regime for the antihumanistic force that it was, we should be able to infer what is needed to rehumanize our society. We need to change the focus from the worship of self-created idols in Washington to an increased awareness of the political dimension of everyday interpersonal relations. It means starting the revolution not in Washington or Vietnam or the Middle East but in your and my family, classroom, workplace, club, and circle of friends. To humanize means to avoid the trap of abstraction, where politics is always somewhere else, in a location or at a level where we can exercise no personal control and hence feel no personal responsibility. It means becoming aware of the political aspects of everyday decisions and choices. Whose interests are being served? What are the hidden forces? Democracy is the form best able to sustain humanistic relationships. Difficult though it is to define, most of us can recognize when it is absent or violated. We do not need a democratic geiger counter to be able to detect the grossest antidemocratic forces in society: the "law and order" criminals, the Eichmann-like technocrats, the power-hungry generals, the Mafia-connected union officials, the oligarchic corporation executives, the petty tyrants in all organizations. They need to be identified, confronted, and denied power whenever possible. Great courage is needed to oppose them, but not to oppose them is to risk allowing the fabric of humane society to be destroyed.

The religious resurgence that is already under way is also part of the new humanism for it, too, is characterized by demythologization and demystification.[2] It is a religion of participation rather than observation, of openness rather than esotericism, of experience rather than ritual, of experiment rather than convention, of equality rather than hierarchy. Above all, it is marked by an absence of the supernatural as something distinct from the natural. There is no dichotomy between the sacred and the profane. Everything divine is touched by the commonplace: everything on earth is in fact sacred. Even religion itself is not clearly distinct from philosophy. These religious views themselves have been greatly influenced by certain existentialist and phenomenological philosophers, including Buber, Heidegger, and Merleau-Ponty.

This mention of the absence of a sacred/profane dichotomy in humanistic religion leads us to a central quality of humanism. It tends to oppose all dichotomies and adopts instead an essentially holistic approach to life and education.[3] In the education of teachers, the humanist will be primarily concerned with the quality of the whole persons being educated. He will be critical of those educational practices that lead to an atomization of experience, a separation of cognition from affect, of skill from attitude. To teach pedagogical skills humanistically is to teach them not as isolated mechanisms but in a gestalt of imagination, purpose, and meaning. As developments in educational technology render it easier than in the past to teach specific skills when they are needed, on the job or in the field, formal educational institutions will be best employed for the cultivation of man's highest powers, for the human nurture of the whole person.

Although humanistic education is person centered, it must serve the person not as an isolated individual but as a member of the human community. Thus we must examine the education of human beings in their relation to themselves, to others, and to the world. I shall devote the rest of this chapter to a closer scrutiny of these three dimensions of a humanistic education.

THE SELF

Throughout most of recorded history, schooling has been of two kinds. For the elite, a minority of rich, powerful, leisured people, there has been, at least in aspiration and sometimes in execution, a "liberal" education: that is, an education of the whole person, for those people who are going to have the time, resources and power to explore themselves and their world in a humane, creative, civilized way. For the masses, a majority of poor, relatively powerless overworked people, there has been what is basically "vocational" training: that is, a training of those few parts of the human person that are useful to the productive processes of society. As compulsory elementary schooling took shape in industrialized societies, it was primarily characterized by training for docility, obedience, subordination, convergent thinking, and other qualities necessary for successful adjustment to a lifetime of uncomplaining, productive work in factory, farm, or shop.

This pattern has remained dominant up to the present day, but in some of the richer industrialized countries of the world, especially the U.S., the affluent have become the majority. Barring a third world war, this process of spreading affluence seems certain to continue through the remainder of this century. As more and more people pass from a scarcity mentality to an affluence mentality, their needs, preferences, and life styles change from those of a survival-oriented life to those of a growth-oriented life.

The kind of education that can prepare us for these changes must draw upon a long tradition of concern for the growth of the whole personality. Humanistic education asserts the bold hypothesis that, in an unprecedentedly affluent society, the education of the self can be enjoyed by almost everyone. By the "self" is meant not merely those human qualities that are considered useful by the industrialized processes of society, but the entire range of human capacities, joys, and sensibilities. An effective program of humanistic education will help the participant become aware of himself entirely--mind, body, feelings, spirit, imagination. This phenomenological awareness of what *is* must precede any judgments about what *ought* to be. Only by facing and acknowledging our fears, desires, socially forbidden thoughts, absurd imaginings, and secret yearnings can we approach that wholeness of person out of which we can creatively deal with these inner movements.

A basic humanistic assumption about the nature of man is that he is capable of achieving freedom.[4] This does not imply an assumption that human behavior is uncaused, random, or uncontrollable, nor does it imply that people are uninfluenced by their environments, their personal histories,

or their experiences. It means that they are, in the last analysis, able to make significant personal choices, to frame purposes, to initiate actions, and to take a measure of control over their own lives. The connection between freedom and purposefulness suggests that the humane education of the self should help the participant learn how to act deliberately and intentionally out of self-framed goals. A program of humanistic teacher education will be marked by a concern for self-direction, responsibility for one's own learning and its evaluation, deep involvement in the present learning experience, and the development of qualities like curiosity, wonder, awe, imagination, commitment, openness, and respect for self and others. Ultimately, the goal of such a program will be to develop in each participant his or her own pedagogical style, based upon the unique combination of talents, strengths, and aspirations brought to life's task.

This humanistic concern to achieve some control over one's own life is designed to combat what will be one of the major human problems of the last quarter of the twentieth century. This is the spread of alienation.[5] The increases in population, bureaucratization, impersonal urban and suburban living arrangements, and other identifiable forces are all contributing to human feelings of isolation, powerlessness, and purposelessness. These are the ingredients of alienated living. Not only does it contribute enormously to individual loneliness and unhappiness, but it is a prime cause of crime and social distress, as unhappy people project the cause of their misery, often violently, onto external objects and persons.

The dream of humanism is nonalienated living. This comes about through feeling that one's life activities are set in a framework of personal meaning and human relatedness. It also requires that one is able to see some causal connections between one's acts and their consequences. Nothing gives a person a stronger sense of meaningful freedom than being able to bring about through intentional action some change in the world, however minor. Saul Alinsky, through his work in the black ghettos of Chicago and other U.S. cities, showed that the crucial factor determining his clients' morale and effectiveness was the degree of their belief in their own power or powerlessness. Similarly, the Coleman Report demonstrated that the vital ingredient in academic achievement is the conviction that one can exercise some control over the events of one's own life.

The other side of the coin of freedom is responsibility. A goal of humanism is to have people take responsibility for their purposes and actions. But responsibility without power is unjust. I cannot justly be held responsible for the consequences of my behavior if I am denied the power to control those consequences. This connection carries important demands for programs of teacher education. It means that the participants in these programs must be involved, at all stages, in the planning, execution, and evaluation of those aspects of the program by which they are affected. We talk glibly of raising children to be responsible persons. This is not possible if the teachers who are the facilitators of the process are themselves people who have been treated in their education

as if unfit to take responsibility for the decisions governing their own professional goals, curriculum, and evaluation.

With this pattern of goals, a humanistic program of teacher education will focus primarily on a serious and sustained self-exploration for each participant. He will be led systematically through an analysis of a series of fundamental questions. Who am I? What do I want? What do I think, feel, sense? What is my personal history? What are the features of my unique way of perceiving the world? What are my strengths and limitations? What goals are worthy of my life's effort? What am I good for? In other words, the emphasis will be upon those experiences that bring increased awareness of the self as a unique being in the world, increased sensitivity to one's special ways of perceiving the world, and a greater clarification of one's personal values.

THE OTHER

The educated person who is the model of a humanistic teacher education program is not a self in isolation but a self in relation. He is a member of a group--of many groups--rather than a separated individual. He achieves freedom not *against* others or *in spite of* others but precisely *through* others. Human relationships constitute the arena of his self-discovery. Hence, the second vital dimension of humanism to which we must attend is the person's relations with others.

One of the certainties with which we shal' have to deal during the remainder of this century is that the world's population will continue to increase. This is true even if we succeed in educating people all over the world to practice appropriate contraception, abortion, and other methods of controlling the birth rate. All countries will feel the press of people and the shortage of land and resources. In the U.S., long-respected qualities of character, which were functional in the adolescent phases of the country's development, will become dysfunctional and even lethal in the mature phases. Qualities that were depreciated as effete in the adolescent phases will become vitally necessary in the mature phases.

In the adolescent, growing phases of the country, when land and resources were plentiful and people were scarce, the most functional qualities were self-reliance, independence, tough resourcefulness, physical courage, and the strength and ruthlessness to conquer and exploit the natural resources of the earth. In the mature, consolidating phases, which we are already experiencing, when natural resources are being depleted and people are crowding in on one another, many of the old virtues have become vices. In educational institutions, it becomes necessary to scrutinize closely the values and qualities we are nurturing. We must evaluate the human costs of school practices like grading, competitive sports, ranking, conventional report cards, and the whole array of pedagogical mechanisms that pit individual against individual. Our commom fate on an overcrowded planet depends upon our ability to develop a range of unfamiliar and difficult skills and qualities.

The primary need is for raising the level of interpersonal competence through developing skills in human relations. These include accurate and sensitive listening, clear self-expression, being in touch with one's feelings, knowing how groups operate and the roles and games people play, being able to give and receive accurate and helpful feedback, and becoming more sensitive to others' feelings, thoughts, and motivations. Developments in the field of human relations during the last twenty-five years have given us a store of research findings, insights, and methods that can be appropriately introduced into teacher education programs to foster students' abilities to work harmoniously, skillfully, and productively with their fellows.

The next quarter of a century will see a marked rise in the price of the competitiveness, materialism, and rugged individualism that are plundering the planet and destroying our awareness of our mutual needs and resources. A humanistic teacher education program will foster greater awareness of the need for interdependence, both in the sense of a value system and in terms of collaborative skills. A major peril in much traditional schooling is that it teaches students to regard others as threats to themselves. Striving to meet the expectations of one's superiors, in competition with one's fellows for the limited supply of favors from above, creates an environment in which schooling is regarded primarily as selection and humane values are endangered.

A humanistic program would encourage a climate in which students regard one another with open interest and unfeigned enjoyment, as potential resources and friends. Some of the most obvious hazards in the way of this development are conventional, individual testing practices and hierarchical authority relations in schools, both of which engender divisiveness, isolation, and dependence among students. We shall have to become more cautious in our individual testing procedures and more skeptical about their results. Prevailing hierarchical patterns of authority relations will have to give way increasingly to horizontal patterns of authority relations, which encourage the development of the spirit and skills of human interdependence.

As we move inexorably from an information-poor society to an information-rich society, the task of education becomes ever less one of adding to the load of information that already bewilders us and ever more one of helping students to make sense of their information-swollen worlds. Hence, educational institutions in the coming decades will have to move more strenuously in the directions of value clarification, practice in choosing and decision making, the assumption of personal responsibility by young people, the developing of synthesizing (rather than merely data gathering) powers, and the encouragement of students to be incurable askers of "why" questions.

The rate of social and technological change has become so rapid that we have created a world in which the young are in many ways more at home than adults are. A paradigm of this situation can be seen in the immigrant family, in which the children usually learn the language and adopt the local mores more easily than do the older folks, who become

dependent on the children as guides to the "new world." In such a situation, schools can no longer serve as simple mechanisms of acculturation, if that means adults telling children, for we are entering a stage in which children have as much to tell the adults. As a consequence, relationships within schools need to be restructured to draw upon all the resources available instead of upon only those of the few adults. We must envisage a disappearance of the conventional role definitions of "teacher" and "student," to be replaced by a setting in which people of different ages will work together, all of whom will at various times be teachers and learners.

The focus of this form of humanistic education will be upon persons and their relationships rather than upon status, role, or category. Thus, dialogue and communication become of central importance. The accurate and authentic use of language will have to be reestablished. As George Orwell correctly foresaw, political leaders have debased language to a dangerously low level. This reached such a depth in the Watergate period that massive cynicism arose about all political statements. Educators of the future must be clear about the ways in which the corruption of language leads to a decline in humane culture and civilized politics.

They need to be skillful practitioners of genuine dialogue and to be able to foster it among others. They should be aware of the nature of interdependent learning and of the gains that accrue from supportive, noncompetitive, collaborative modes of relating. They must learn that the group atmosphere that best motivates people to learn to think creatively is one in which there is much real listening, openness, trust, constructive feedback, and free speculation; in which people feel free to think metaphorically, analogically, and absurdly; in which there is great tolerance of fantasy, ambiguity, and new ideas; in which people explicitly give each other credit for their contributions and point out the strengths and good points in even crazy-sounding notions; in which everyone builds on what has gone before rather than knocking down and starting afresh; and in which, instead of some winning (those whose ideas prevail) and some losing (those whose ideas are rejected), all win, because ideas are built upon others' ideas and everyone feels he has a stake in the final outcome.

The demand for dialogue carries important political, economic, and social implications. If we take seriouly the need for dialogical relations with others, we must confront the fact that such relations are marked by equality rather than hierarchy. Hierarchical inequalities of status threaten to destroy or prevent dialogue by producing all the temptations of patronization or exploitation of inferiors, the pleasing or "psyching out" of superiors, and a thousand other deceptions and treacheries, which render impossible the honesty, trust, and empathy that are dialogical prerequisites. We have a great deal of historical evidence to show that it is impossible to confine the demand for equality (as for freedom) to a small segment of life. Luther fought successfully to grant people the freedom to read the Bible for themselves. But he was appalled when this tasted freedom led to demands for new political and

social freedoms. The reason Paulo Freire was imprisoned and banished by the Brazilian government was that it recognized that his method of egalitarian, dialogical relations between teacher-facilitator and student-peasant had dangerously explosive political, economic, and social implications.[6]

Humanistic teachers in the next quarter century will have to go beyond equality. For the celebration of humanism means the celebration of human uniqueness and diversity. That is, humanistic relationships are marked by a celebration of inequalities--the things that differentiate us. Most people, fortunately, have known the richness, excitement, and vividness of experience that come from difference of sex. That kind of stimulation can come from other differences, such as skin color, language, nationality, taste, interest, background, and so on, once we grow beyond the projected fears that contact with the unfamiliar usually brings. We must take care that our justified zeal for removing inappropriate inequalities of treatment and opportunity does not result in a reduction in those human diversities that provide the tension, vibrance, and excitement of the richest human relationships.

The new humanism will be marked by a new pluralism. The terrifyingly inhumane monism demonstrated by many of the defendents in the Watergate trials does not permit the growth of humanistic relationships. These require a pluralistic value structure that grants the privilege of difference and does not insist on obedience to a single norm. Teacher education programs that serve this end will contain experiences that develop the skills of negotiation, compromise, and group decision making.

It is clear that many of the forms of social control that have maintained the fabric of society and the human interconnectedness within it are disappearing and will continue to erode. Watergate merely speeded up the process that was well under way of massive loss of confidence in lawyers, police, political leaders, church leaders, patriotism retailers, the FBI, the CIA, the Department of Defense, and other handsomely rewarded surf riders on the swell of the Puritan ethic. There can be no going back for another ride. The Puritan ethic has been rendered inoperative by its overzealous salesmen. But a society cannot survive without some sense of commonality. When the professional bogeymen have lost their power to frighten us, we shall have to find something better than fear to serve as connective tissue.

Three things have promise of serving this purpose. They all can help us realize our essential human connectiveness, which transcends those of family, locality, nation, race, or sex. The first is a recognition of one's place in history. Through this awareness one can gain a sense of continuity, perspective, personal dignity, and essential linkage with those in the past whose work has been an essential precursor to our own. The second is a recognition of our need for present mutual support in a society in which many of the traditional piers of support have been rotted by eddies of disillusionment. Such mutual support can be gained best by working collaboratively for common purposes, whether the arena be a T-group, a work camp, an Outward Bound course, or a commune. The third

way is through the development of an ecological consciousness, wherein we perceive our responsibility to those people in the future whose lives will be enriched or blighted according to the extent our own responsibility to the earth today.

It is becoming increasingly clear that humanistic education will not survive, nor help us survive, if it indulges in the characteristic U.S. sin of competitive individualism. The essentially individualistic aim of trying to live humanely in an oppressive, dehumanizing society is not enough. The forces of oppression are too strong and too shrewd to be defeated by the hopeful innocence of Consciousness III. We need to gain Consciousness IV, which means adopting the essentially socialist aim of humanizing our environments. Social rehumanization cannot be successfully carried out by naive zealots. It requires the disciplined acquisition of the skills and knowledge of organizational development and the planning of change, and the ability to rehumanize bureaucratic structures. This means that teachers will have to become familiar with power confronting as well as reeducative, collaborative methods of inducing change.

THE WORLD

The skills of organizational development mentioned above include knowledge of how to engage effectively in a planned process of cultural change in organizations, including issues of structure, leadership, and decision making. Humanistic education is most liable to founder on this third dimension of the world, by which I mean being able to make a difference to the processes, structures, and relationships that one's life touches. This is the dimension of power and effectiveness. This is where rhetoric, intention, and motivation are not enough and become measured by the criterion of successful accomplishment. The humanistic goals of self-awareness and interpersonal sensitivity must be translated into the language of worldly competence or they will remain merely solipsistic or ego massaging. Humanistic teachers must be more, rather than less, competent than others in their ability to plan, execute, and evaluate their professional tasks.

As we move towards the twenty-first century, it is certain that the problems facing our society will continue to become more complex and subtle, requiring ever more ingenious and delicate measures for their solution or amelioration. By the end of this century, there will be an extremely exigent need for creative ideas about how to meet the human problems and dilemmas that will abound. This requires that educational institutions change their focus from the present training in convergent thinking to the development of divergent thinking and creative problem solving. As adults, we lack the skill, knowledge, resourcefulness and creativity to solve the problems our children will encounter. They must, for their survival, become more ingenious and creative than we are. Nor can we place our hopes in being saved by a creative elite who will do the thinking and innovating for the masses. This may work in Walden Two but it is a self-contradictory model for a humanistic society. Most

educational institutions today allow a few to become creative artists and train the majority for contented, obedient adjustment. In a humanistic society, the role of such institutions must become that of helping everyone to meet the large and small encounters of life with ingenuity, flexibility, and creativity.

It is precisely in times of rapid social and technological change such as those we can predict for the rest of this century that certain humanistic competences become of crucial importance. These include qualities such as a high tolerance for ambiguity; a willingness to postpone closure; an ability to operate effectively within unclear or open structures; and a capacity for using fantasy, metaphor, and symbols in problem solving. These are all qualities that correlate positively with creativity. Teacher education programs of the future will have to nurture these qualities if we are going to be able to celebrate humanism. In such programs we shall have to walk warily through the mine field of dangerous traditional notions like right answers, correct behavior, and predicted outcomes. Creativity is easily demolished by such reductive notions, for creative solutions or inventions are necessarily unpredictable and usually unique to a particular problem or condition. The humanistic quest is to encourage the development of teachers who are both creative themselves and capable of enhancing the creative energies of their students. This requires building institutions and atmospheres where we can be awakened by surprise.

The humanistic goal of worldly effectiveness means that we must be concerned with creativity not only in the sense of the "fire in the belly," the novel insight, the inner illumination, but also in terms of the concrete, external manifestations of those inner stirrings. Thus, we must give attention to the productivity of teachers. It is important, however, to be on guard against the facile use of the metaphors of industrial productivity or business efficiency and to gauge carefully their appropriateness to the tasks of teaching and learning. It is tempting, especially in times of real or engineered economic recession, to employ in teacher education industrial concepts like productivity, efficiency, and cost effectiveness; but they are inadequate as guides to humanistic decision making.

A humanistic concept of productivity demands that the productiveness come from the center of the person. It is creative energy as an expression of individual potency. In the humanistic ideal, the productive teacher is closer to the creative artist than to the assembly line worker. This kind of productivity is a creativeness that stems from inner urgings rather than an activity that responds to outer pressures or controls. Some of the most important outcomes of a humanistic program, such as creative invention, critical thinking, personal goal settings, decision making, educability, and feelings of competence, may be most difficult to measure in precise behavioral terms. Hence, we must avoid allowing the need for creative productiveness to move us into an attempt to impose an inappropriate precision of measurement on the outcomes of the creative process.

Moreover, when we are considering teacher productivity, it is important to include a sense of appropriate timing. There are great

dangers in demanding productive outcomes too soon. Creative action requires that we be willing to live with the tension that comes with increasing complexity and lack of closure until the optimum moment for action arrives. To act too soon, which we often do out of impatience, panic, or miscalculation, is as harmful as to act too late, for in both cases we fail to include all the facets of a creative act.

Creative action in the world is to be distinguished from busyness. The latter, indeed, is one of the commonest ways to evade the rigorous demands of the former. In the U.S., we are constantly in danger of adopting a superficial notion of creative action that involves us in always being up and about, demonstrably doing something useful. Fortunately, there is a growing climate of skepticism about this "American way." Ivan Illich has suggested that we need to foster "the autonomy of the ludicrous in face of the useful." Disenchantment among many people with some of the more pernicious manifestations of U.S. productiveness like military violence and industrial pollution has led to a revulsion against producing always more. Furthermore, there has developed an increased interest in and respect for oriental, American Indian, and existential values of being, in contrast to western, instrumental values of doing.

A humanistic productivity in the last part of the twentieth century will not be marked by the avaricious, rapacious desperation that has characterized so much of our compulsive growth up to this time. It will include a transnational approach to the world's resources. Since the human being is the unit of value, decisions must be made on the value-base of all people, rather than on that of lesser groupings like nations, sects, races, political parties, or special interest groups. A humanistic education is ecologically responsible in that it fosters the kind of simplicity of life style and restrained attitude towards the production and consumption of material goods that is a characteristic of the new humanism.

The humanistic self in the world must also be conscious of the space dimensions of action. The space in which to begin to bring about the humanist revolution is always here and now. As educators we must learn to cast off the inhibiting effects of focusing on other times and places. We must grasp the opportunity of the present moment and the present situation--however imperfect they might be--as the arena in which to manifest our values in action. Giving attention to abstract or distant or hypothetical situations draws energy away from the existential moment. There are no throw-away people or throw-away situations.

On the other hand, humanistic teacher education of the future will be much less place- and institution-bound than are our present programs. Students will go wherever their educational needs direct them. No one will complete all of his teacher education within a single culture. A period of residence abroad will be a normal feature of such programs. Experiencing another culture is the best way to understand oneself as a cultural being and to gain perspective on one's own society. The

adaptability called for in successfully living and learning in other cultures can form the experiential skill-base upon which a value commitment to a pluralistic humanism can be built.

NOTES

1. I should like to acknowledge my indebtedness to the staff of the ERIC Clearinghouse on Teacher Education for conducting a data search and providing valuable data print-outs on futurism and humanisim, which have enriched my reflections on these subjects.

2. It must be recognized, of course, that there also exist in contemporary society other religious currents, which do not manifest the tendencies described in this paragraph. On the contrary, they are marked by extremely dependent devotees, guru-like leaders who often amass great personal wealth, and much obscurantism and mystification. I am not unaware of these movements but they are not manifestations of the new humanism. Essentially reactionary, they hold no promise of nurturing higher levels of human development.

3. The humanistic viewpoint denies dichotomies in the sense of real, nonoverlapping splits in nature. This does not, however, depreciate the functional value of making important distinctions for purposes of discussion. Thus, the humanist might usefully talk of intellect and emotion, but he would not regard these as naturally dichotomous entities.

4. This sketchy treatment of the complex concept of human freedom is necessarily inadequate. For a fuller examination of some of the philosophical basis of my position, see Paul Nash, Authority and Freedom in Education (New York: John Wiley and Sons, 1966), especially chapter 5.

5. This is another complex term, the nuances of which must be skated over in this brief treatment. Although it is used in a pejorative sense here, it is necessary to acknowledge that some forms of alienation can be precursors of humanistic growth. For example, becoming alienated from one's former way of viewing the world can be the beginning of a transformed vision of oneself and one's possibilities. For a provocative treatment of such changes, see George C. Leonard, The Transformation (New York: Delacorte Press, 1973).

6. For a description of this methodology and its philosophical rationale, see Paulo Freire, Pedagogy of the Oppressed (New York: Herder and Herder, 1972).

7. One of the best recent statements of this position is Philip Slater, The Pursuit of Loneliness (Boston: Beacon Press, 1970).

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